Germany – Israel

Science and Technology, Education and Research
Germany – Israel

Science and Technology, Education and Research
Foreword

Germany-Israel: working relationship in the sciences and technology, education and research

The German-Israeli cooperation in the sciences and technology, education and research is highly lively and diverse. The large-sized web of relationships between scientists in both countries has been extended over the last more than 50 years. To support this process, we called into being in 2008 the German-Israeli Year of Sciences and Technology. We have primarily and further strengthened the humanities and cultural sciences, and have improved the networking among young scientists.

Since September 2010, young German and Israeli scholars have been jointly supported by the Foundation Martin Buber Society of Fellows in the Humanities. Facility of research is the Hebrew University in Jerusalem. The best scientists in Germany and Israel are now working together in nearly all fields of research. The thrust of this work is formed by important fields of needs, to which research into health, biotechnologies and civil security belong. We want to “future-proof” the long-term working relationship between our two countries. This requires attuning proven models of cooperation to the continually-changing needs of two dynamic and high-powered systems of the sciences. Flexible and precisely-aligned instruments of funding are required to reap excellent results in all fields.

The First German-Israeli Forum on Research Cooperation is a further instrument of this cooperation. The Forum’s objectives are depicting the range of research relationships and, at the same time, imparting a new impetus to these ties. The Research Forum represents a new highpoint in our joint efforts. To secure prosperity and to exploit potential for growth, we have to keep on linking tradition and progress. By doing such, Germany and Israel will be successful in the global competition in the sciences and technologies, and in education and research.

Federal Minister of Education and Research
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The significance of the cooperation between Germany and Israel

As of the beginning of the 21st century, the working relationships existing between Germany and Israel in the areas of the sciences and technology have attained an intensity unforeseeable as of the time of their inceptions nearly 50 years ago. With this starting at the end of the 1950s, this progressive broadening and deepening of the ties existing among the countries’ scientists have constituted an important wellspring of the ongoing normalization of political relationships. Germany’s original motive for pursuing such relationships was indemnification. The countries’ relationship has been transformed into being one of equals.

From the past to the present

Scientists of Jewish origins played a significant role in the German (referring to the countries and areas in which the language is spoken) sciences in the era preceding 1933’s assumption of power by the Nazis. Their tyranny put a violent end to this success story. The aftermath of the founding of today’s Federal Republic of Germany was marked by the wish of the country’s scientists to renew and restore the fruitful ties once existing with their German Jewish colleagues. This process began in the early 1950’s, with the forging of person-to-person contacts at international conferences between Germans and Israelis. It took until 1959 for a major breakthrough to be achieved. A delegation from the Max Planck Society (MPG) was invited to visit Israel by the Weizmann Institute (WIS). This forging of a tie to the Weizmann Institute gave Germany a way of securing further qualifications for its young scientists, who had been increasingly migrating to the USA during the 1950’s, that did not represent a one-way ticket out of Germany. As subsequently was the case with their colleagues at Israel’s universities, the scientists at WIS saw the cooperation with Germany’s researchers as offering an opportunity to bring about the further expansion of their facility’s research infrastructure.

The tie ensuing between MPG and WIS marked the beginning of ongoing and long-term working relationships between the countries’ scientific communities. Concluded in 1964 and still in force today, the Minerva contract has provided a rock-solid foundation for the working relationship between these two large and important research organizations.

The sciences were thus forerunners of and pace-setters in the forging of ties between the Germans and the Israelis, a process that attained its apex with the assumption of diplomatic relations in 1965. Today, 63 years after the founding of the state of Israel and 62 years after that of the Federal Republic of Germany, this scientific relationship can be regarded as being a success of historical import.

Israel is today one of the world’s leading scientific nations. The country has become one of the most important partners in the world for Germany’s scientific and business communities. Israel’s development into a high-tech country has joined the close working relationships between the countries in the areas of the sciences in leading German manufacturers to progressively increase their investments in Israel.
Conversely, a large number of Israeli companies have selected Germany to be the base of their activities in Europe.

Israel: a high-tech country

Israel is small and has virtually no natural resources. To overcome these basic conditions, the country’s founding parents decided to build up its research facilities and its scientific community in general. To do such, they instituted economic policies focused on exploiting the country’s greatest asset – the high quality of its education system and the intellectual capital that it produces – by harnessing them in the engendering of exports of high-tech products.

For many years, Israel has invested more heavily in its research community than any other country in the world. This investment has joined the 1990’s wave of immigration by scientists from Russia in giving Israel the world’s largest per capita agglomeration of scientists and engineers.

One fact revealing the international-mindedness of Israel’s scientists is that one third of the publications issued by them feature non-Israeli co-authors.

Scientific cooperation on the international level

Israel’s population is not large. This fact imposes boundaries on the country’s research activities. To overcome these, the country strives to extend its base of – high-quality – research by setting up working relationships on the international level. These reduce financial encumbrances. Main partner for such relationships is the USA. America’s companies, investors and large-sized foundations provide the research commissions, venture capital and scholarships providing a substantial part of the funding going to research in Israel. The USA is also the partner of choice for Israel’s post-docs and other young scientists, for which a research post at a major university in the USA constitutes an essential stepping stone to a successful career. Second most important partner for Israel’s scientific community is Germany. This applies to both the bilateral and European levels. Israel’s cooperation with Germany opened the door to its securing of research grants from the European Union (EU). This, in turn, facilitated the integration of Israel into Europe’s research sector.

Since 1996, and via special-purpose agreements of association, Israel has been participating in the European Union’s framework programs for research and technological development.

Chaim Weizmann (1874–1952), the first president of the state of Israel and, as well, the president of the institute named after him, was one of the first to recognize that intelligence “is the only natural resource that we possess”. His efforts to establish a Jewish university in the then Palestine led to the opening in 1925 in Jerusalem of the Hebrew University. In 1934, he set up the Daniel-Sieff Institute in Rehovot. The role model of this predecessor of today’s WIS was Germany’s Kaiser Wilhelm Institute. Immigration in the 1930s of Jewish scientists from Germany impelled the development of this and other high-performing scientific institutions in Israel.

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Germany’s chancellor Konrad Adenauer and Israel’s Prime Minister David Ben-Gurion at their historic meeting in New York on March 14, 1960

Education and research

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The significance of the cooperation between Germany and Israel

Germany is Israel’s most important partner within FP7. As of 2011, a total of 352 projects with German-Israeli participation had been approved.

Israeli scientists submitted more than 4,100 applications for funds from the 7th Research Framework Program (FP7). Of them, 754 were approved. Of these, nearly 64% were from the country’s universities and 24% from its manufacturers. Most important in this area is the working relationship with Germany. Nearly 47% of the Israeli projects of cooperation approved in conjunction with the FP7 featured important contributions from German scientists. The total number of projects involving German-Israeli participation is highly significant. As of 2011, a total of 352 projects had been approved.

The country’s improving of ties over the last few years with the majority of Europe’s research organizations and associations has been achieved through its becoming a full or associated member (with observer status) in them. Israel is a full member of EUREKA, the European network for market-oriented research and development, and a “cooperating state” in COST, an instrument for the fostering of cooperation in Europe in the areas of scientific and technical research. In 1998, Israel was accorded the status of being a non-voting scientific member of the European Synchrotron Radiation Facility (ESRF) in Grenoble.

Israel is also a founding member of the European Molecular Biology Organization (EMBO) and of the European Molecular Biology Laboratory (EMBL). The country is a member of the European Science Foundation and of the European Academy. Israel also enjoys observer status at the Organization for Economic Cooperation and Development (OECD) and at the European Organization for Nuclear Research (CERN).

Economy

In 2010, Israel recorded a 4.6% rate of economic growth. Coupled with a steadily declining unemployment rate, this figure details the health of the country’s economy, which has recovered from the worldwide economic crisis and from the effects of the second Intifada. The ensuing boom has caused high-tech start-ups to shoot up everywhere. Today’s Israel is home to more 3,000 companies. These are predominantly small-sized and R&D-driven. More than one third of them are active in IT. The thrusts of corporate R&D are communication technologies, biotechnologies, medical technologies and solar energy.

A wellspring of the success of Israel’s high-tech companies is constituted by the comprehensive system of state support. Main conduit of provision is the country’s Ministry of Industry, Trade and Labor (MOITAL). Israel devotes 4.8% of its gross domestic product to research and development – the highest figure in the world. The Global Competitiveness

Germany is Israel’s most important partner within FP7. As of 2011, a total of 352 projects with German-Israeli participation had been approved.
The significance of The cooperation between Germany and Israel

Report for 2006 ranks Israel 15th in the world in the area of technological competitiveness, and thus ahead of Canada, France and Korea. Israel has been, in fact, accorded first place in the area of the availability of scientists and engineers.

A further factor of success is the large portion accounted for by private risk capital in the country’s funding mix. Israel’s provision of venture capital is greater than any country in Europe, and thus more than that of the UK, Germany, France and Sweden.

The attractiveness of Israel as a place of investment is detailed by the ongoing high inflow of capital into it from primarily the USA and from other countries. Main objects of these investments are the biotech and other high-tech areas. Impelling international interest in investing in the country’s companies is the fact that their assets primarily consist of patents and staff expertise. This intellectual capital is easy to relocate abroad in times of crisis.

Siemens, SAP, Volkswagen, Daimler AG, Deutsche Telekom, Bosch Siemens Hausgeräte, Henkel, BASF and Bayer remain the most important German investors in Israel. SAP, Siemens and Deutsche Telekom have undertaken significant direct investments in the country over the past few years. The involvement by Germany’s business community in Israel also manifests itself in the research commissions awarded to Israel’s institutions of higher education and research facilities.

By the same token, Israeli companies continue to invest in Germany – with these including Federmann Enterprises (semiconductor materials) and ISCAR (machine tools) – and to award a large number of commissions to German research institutes.

The first German-Israeli Intergovernmental Consultations featured March 17, 2008’s promulgation by German federal minister Prof. Annette Schavan and by her then fellow minister Galeb Majadle of a scientific forum. Held in Jerusalem, its subject was “From a commissioned producer to the developer of market-viable products – the role played by academic basic research in the industrial development of Israel and Germany”.

In 2010 the first German-Israeli Innovation day took place. Attended by leading businesspersons from both countries, the Innovation Day was chaired by Rainer Brüderle, Germany’s then federal minister of economic affairs, and by Benjamin Ben Eliezer, who was in those days Israel’s minister of industry, trade and labor. The aim was to discuss challenges with leading experts, find suitable partners for cooperation during sector-specific panels and matchmaking sessions, and get information on government funding instruments.

Germany’s companies are also prepared to support the German government’s “Initiative for the Future of Palestine” and to participate in projects encompassing the region formed by Israel, Palestine and Jordan. This is their way of doing their part in the promoting of peaceful coexistence in the region.
Cooperation programs

The cornerstones of the working relationships between Germany and Israel in the area of scientific working relationships are five cooperation programs, each with its own objective, and all supported by BMBF (Germany’s Federal Ministry of Education and Research).

In addition to BMBF and its cooperation programs, a number of other organizations foster such working relationships. They include the German Research Foundation (DFG), the Alexander von Humboldt Foundation (AvH), the German Academic Exchange Service (DAAD) and such private foundations as the Volkswagen and Fritz Thyssen ones.

The key-instruments supporting these efforts:

- Minerva programs
- the inter-ministerial research cooperation maintained by BMBF-MOITAL-MOST, including the program for joint efforts in the area of vocational education
- German-Israeli Foundation for Scientific Research and Development (GIF)
- German-Israeli Project Cooperation (DIP)
- Foundation Martin Buber Society of Fellows in the Humanities

Securing the future of cooperation in research and technology requires an intensive participation by the young generation. To bring this about, corresponding measures have been incorporated into all extant scientific and technological cooperation programs. Over the last few years, new programs in the field of energy, marine studies and civil security research were set up and extended. Especially worthy of being mentioned is the field of water technology, in which the bilateral projects were extended to include multilateral ones in the region. The short-term scholarships offered by Minerva and GIF’s young scientists program are complemented by those of Germany’s large-sized exchange organizations.

The event kicking off the German-Israeli Year of Science and Technology. The event was held in the Glass Courtyard of Berlin’s Jewish Museum on April 7, 2008. The event took a look at the nearly 50 years of cooperation between the two countries.
Programs of the Minerva Foundation

It was as long ago as 1959 that the initial contacts between scientists at the Max-Planck Society (MPG) and the Weizmann Institute (WIS) launched the scientific exchange between Germany and Israel. Nowadays, the Minerva Foundation employs three programs to fund research in and with Israel.

On March 14, 1960, the historically-important meeting between David Ben-Gurion, Israel’s prime minister, and Konrad Adenauer, Germany’s chancellor, took place in the Waldorf-Astoria Hotel in New York. At the meeting, Adenauer announced a donation of DeutschMarks 3 million to the Weizmann Institute. This launched the era of comprehensive support of the sciences in Israel.

Minerva-Weizmann Project Support

The first steps were the awarding of the Weizmann Institute with research commissions upon which scientists from both countries were to work. Concluded in 1963, an initial agreement foresaw the supporting of scientific projects. The DeutschMarks 2 million in funding for these was provided by the Volkswagen Foundation.

As of 1964, the then German Federal Ministry of Research assumed – under the auspices of the first Minerva contract with the Weizmann Institute – the financing of 19 projects in the fields of physics and biology. Total amount of support: DeutschMarks 3.5 million. The Volkswagen Foundation then also financed the exchange of scientists engaged in conducting basic research in fields of common interest. Today, the Minerva-Weizmann program supports projects in all fields of the natural sciences. As of this writing, up to 80 projects receive a total of €3.57 million annually for three years.

The Minerva-Weizmann Committee is equitably comprised of scientists from Germany and from the Weizmann Institute. Its job is to evaluate the projects. To formulate its decisions, the Committee avails itself of appraisals secured from around the world and of on-site symposia. Priority is given – assuming that they all have the same level of quality – to projects featuring German participation and applications submitted by young scientists. Since the beginning of 2008, young German scientists have been making use of the opportunity of directly applying to ongoing projects for grants for a short-term stay. These are funded by the Weizmann Institute.

Another priority is increasing the intermeshing between the Weizmann Institute and German research centers in the fields of fostering the talents of young scientists and of educating graduates. It was as early as 2005 that the Minerva-Weizmann Committee decided to furnish funding for the working relationship between the Feinberg Graduate School and the International Max Planck Research School (IMPRS) for Molecular Biology in Göttingen. The project got a very positive evaluation and has since served as a role model. Up until now, BMBF has dedicated some €127 million for Minerva project-related research at the Weizmann Institute. This research has accounted for more than 10% of the publications issuing from the Weizmann Institute as a whole over the last 10 years.

Minerva Research Centers

Funding has been provided since 1975 to Minerva Research Centers. These small-scale centers of excellence are located at Israeli universities and at the Weizmann Institute. The centers are joined by German scientists in carrying out advanced research. The spectrum of sciences covered by the centers, which form by now an important part of Israel’s research community, include the biosciences, the geosciences, chemistry, computer sciences, environmental technologies, jurisprudence, literature, theology and history. The Centers facilitate the focusing on certain fields of research and the constituting of networks in these. The Centers also intensively foster a pipeline of young scientists and help bring about the deepening of the exchange of experience between scientists in Israel and Germany. Financing for the research centers stems equally from the return of capital made available by Germany’s then Federal research ministry and invested in Israel on a long-term basis (currently amounting to some €62 million) and from funds provided proprietarily by the selected Israeli research institutes. The latter is of the amount of the annual capital earnings (matching principle). Although not excessively large, the funding is capable of being flexibly allocated. This, in turn, helps explain the successes achieved by the Centers. The Minerva Foundation has commissioned the Minerva Center Committee...
## Minerva Stiftung GmbH

<table>
<thead>
<tr>
<th>Programs of support</th>
<th>Minerva Centers program</th>
<th>Minerva-Weizmann Project Support</th>
<th>Minerva Scholarship Program</th>
<th>Gentner Symposia</th>
<th>Minerva Schools</th>
<th>ARCHES Award</th>
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<tr>
<td></td>
<td>centers of excellence at Israeli research institutions</td>
<td>research projects and short-term stays by German pre-docs and post-docs (supported by the WIS)</td>
<td>research stays (both short and long-term) by German pre-docs, post-docs and young scientists</td>
<td>symposia on fields of research new to German-Israeli cooperation</td>
<td>several-day workshops for advanced students + young scientists</td>
<td>BMBF prize for two German-Israeli teams of young scientists a year Administration by Minerva Foundation</td>
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<td>all</td>
<td>all</td>
<td>all</td>
<td>natural and engineering sciences, life sciences, social sciences and humanities, alternating annually</td>
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<td>call for proposals: annually</td>
<td>call for proposals: annually</td>
<td>call for proposals: annually</td>
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### Contact
- Ms. Angelika Lange-Gao (lange-gao@gv.mpg.de)
- Ms. Sieglinde Reichardt (reichardt@gv.mpg.de)
- Mr. Michael Nagel (nagel@gv.mpg.de)
- Tel.: +49 (0) 89-2108-1420

### Website
http://www.minerva.mpg.de/
with the coordination and the operations-spanning supervision of the Centers. The Committee is comprised of internationally-recognized scientists from all fields, and is responsible for the evaluation of applications for and the selection of new centers, and for the appraising on a regular basis of the Centers. The latter two activities are undertaken employing external experts. The Centers program is currently in a process of transition towards instituting a more competitive procedure.

**Minerva Scholarship Program**

The Minerva Scholarship Program is the oldest extant program charged with fostering German-Israeli working relationships, having been kicked off in 1961/62 with the initial research residency of a German guest scientist at the Weizmann Institute. The program’s extension in 1964–1973 was undertaken with the help of the Volkswagen Foundation. During this period, the first Israeli post-docs conducted research at Max-Planck Institutes in Germany. The launching of the financing of the program by Germany’s Federal research ministry enabled the inclusion of Israeli universities in the program of exchange. As of 2010, the ministry had supplied a total of some €40 million to fund long-term research residencies of some 1,000 Israeli and 1,000 German scientists in the other country. The scholarship program devotes €1.2 million a year to funding some 50 annual scholarships. These go to young scientists from both countries.

Minerva scholarships are available to researchers in all fields. Prime objects of support are pre-docs and post-docs. Terms of support range, as a rule, between at least six months to two years. Maximum length is three years for pre-docs. With some 35 being awarded annually, Minerva scholarships for brief stays – between one and eight weeks – provide young German and Israeli scientists with the opportunity to forge initial contacts with partners in the host country, and to take part in seminars and workshops.

Set up in 1997, the 30 (as of 2010) Minerva Schools facilitate the objective of providing promising students – in all fields of the sciences – with contacts to leading scientists in them and from both countries during their higher education. Platforms of this forging of ties are get-togethers lasting two or more days. The goal is to arouse interest on the part of young scientists in undertaking long-term research residences in the other country.

Even great aspirations are held by the Gentner – named after Wolfgang Gentner, one of the parents of Germany’s forging of scientific ties to Israel – Symposia, which have been receiving funding since 1972. Topics of these large-scale conferences are found in all fields of research. Total financing of these amounts to some €30,000. This stems from the scholarship program. Young scientists flock to participate in these symposia.

The dispensing of scholarships is decided upon by the Minerva Scholarship Committee, whose members are, on an equitable basis, scientists from Germany and Israel.
**BMBF-MOITAL-MOST inter-ministerial research cooperation**

The German-Israeli research cooperation is based on the working relationship between Germany’s Federal Ministry of Education and Research (BMBF) and Israel’s Ministry of Science and Technology (MOST). Its foundation was an agreement reached in 1973. Since 2000, the inter-ministerial working relationship has been extended to bilateral working relationships in the area of industry. These are derived from an agreement concluded by BMBF and by Israel’s Ministry of Industry, Trade and Labor (MOITAL). In June 2011, Prof. Annette Schavan and Shalom Simon, Israel’s minister of industry, signed a governmental agreement on industry-driven research and development and on vocational and professional education.

The supporting of projects in the natural and technological sciences is undertaken via bilateral calls for proposals. In contrast to those supported by the Minerva programs, the projects tend to be application-oriented. Projects of cooperation between universities and research facilities are largely financed by BMBF and supported in cooperation with MOST. The financing of working relationships between industrial partners is equitably undertaken by BMBF and by the programs of MOITAL’s Office of the Chief Scientist (OCS). BMBF channels the financing of both programs via the funding initiatives of the individual BMBF programs of specialization.

BMBF routed in 2009 some €12 million for ongoing projects via such programs of specialization. The thrust of the ministries was pursuing those topics that are also receiving support from these programs and that satisfy the interests of MOITAL and MOST. The results of the research work are reported upon in a large number of scientific publications. This work has also been made accessible to the general public by the staging of status seminars.

The coordination of the inter-ministerial research cooperation is undertaken by a joint committee whose members are representatives of the participating ministries and of national authorities. The joint committee meets once a year. The venue of these meetings alternates between Germany and Israel. Steering committees supervise the scientific level, and issue recommendations as to which projects are to be supported. The committees also evaluate the results of the projects. The committees are also charged with strengthening and coordinating the work of bilateral agreements, with these including those forming part of the European platforms upon which both countries participate (EUREKA, Eurostars, FP7).

The current thrusts of the inter-ministerial research work are in the following areas:

**Cancer research**

The cooperation between BMBF and MOST in the area of cancer research was launched in 1976. The cooperation is implemented by the Heidelberg-based German Cancer Research Center (DKFZ) and by Israeli research facilities and universities.

Each of the joint scientific projects has a three-year term, and each is comprised of an Israeli and a DKFZ subproject. On an exceptional basis, a German subproject can also be headed by a scientist from a partner facility.

As of the end of 2010 and in conjunction with the cooperation, 144 projects undertaken by DKFZ and its partners had received support. Of these, 127 had been successfully concluded. The total amount of funding for the German and Israeli projects came to €26.7 million.
Twenty four young German and Israeli cancer researchers will be given the chance to participate in a doctoral training program offered jointly by the German Cancer Research Center in Heidelberg, and the Weizmann Institute of Science in Rehovot. As part of their German-Israeli doctoral theses, the young scientists will carry out research at the respective partner institute for a period of six to twelve months.

In a first, a Winter School receiving support from a Helmholtz Association was staged at the beginning of March 2008. Venue was Pichl, Austria. At the School, 19 students and pre-docs from Israel and Germany gave lectures on imaging in molecular-level cancer research, on molecular biology and on epigenetics. In March 2010, the Research School was held for the third time. Its focus was immunology.

Biotechnologies

Also in existence since 1976 is the cooperation between BMBF and MOST in the area of biotechnologies. This working relationship was reconfigured in 2000 to focus on application-conductive projects of cooperation involving Israeli research groups and German companies.

This, in turn, has formed the foundation of the support provided by the German-Israeli Cooperation in Biotechnology – BIO-DISC. MOITAL/OCS participated in the founding of this cooperation, which provides support to the bilateral research consortia comprised of German and Israeli companies. The financing of the work of the Israeli partner issues via OCS; of the German side via BMBF. Universities and research facilities from both countries are entitled to participate in these industrial consortia as subcontractors, and to submit joint feasibility studies serving to ready industrial research and development (R&D) projects.

Undertaken in the five rounds of tendering since the first publication, consortium projects have received a total volume of support of nearly €10 million. This has issued equitably from BMBF and MOITAL. BMBF has also provided a further €5 million for a total of ten feasibility studies. These have been compiled by research facilities in Germany and Israel. Topics covered by the projects range from the development of technologies to the improvement of plants, the employment of the analysis of genomes in the development of genes of therapeutic use, and the further development of medical-use implants. In Spring 2010, the sixth round of this successful German-Israeli working relationship took place, which features the participation of manufacturers.

Neurosciences

An agreement between Israel and Germany on scientific cooperation in the area of health research forms the basis of the support provided since 1976 by BMBF to bilateral and biomedical research pro-
Cooperation programs

In 1998, the thrust of the program’s research was shifted from the heart and circulatory system to neurology. Such topics as epilepsy, neuronal degeneration and the role of molecular and cellular mechanisms in the brain’s functioning became the primary focuses of research. The program came to an end in 2008. During its time of operation, it provided support to 23 bilateral research projects, and, starting in 2003, to a successful exchange program for young scientists.

Drilling a well in the Desert of the Judean mountains, which is located close to the Dead Sea

Environmental research

In addition to pursuing research into technology-oriented fields, BMBF facilitates the securing of the availability, quality and distribution of water, a resource that is a necessity of life. Conduit for such efforts are the ministry’s “Global Change and the Hydrological Cycle – GLOWA” overall program and a scientific strategy. A subproject is the GLOWA JR – for “Jordan River” Project, in which German, Israeli, Palestinian and Jordanian partners have been participating since 2001. This interdisciplinary project is being undertaken to appraise the vulnerability of people and ecosystems. To that end, various methods of water and land management and their ecological and socioeconomic ramifications are being investigated. The integrated examination of natural, scientific and socioeconomic processes represents a successful and pioneering achievement in the field of environmental research. It should be capable of being transferred to other semi-arid regions featuring transnational water resources. GLOWA JR entered its phase of implementation in the German-Israeli Year of Science and Technology in 2008.

Water technologies

Water is a precious essential of life. This holds especially true in such arid regions as Israel. The cooperation between BMBF and MOST in the area of water technologies was launched in 1974. Since then, some 162 research projects featuring input from German experts have been carried out at Israeli research facilities. Main topics of these have been
### Inter-ministerial Cooperation

<table>
<thead>
<tr>
<th>Fields</th>
<th>Cooperation programs: Cancer Research, Biotechnology, Neurosciences, Environmental Research, Water Technologies, Marine Sciences and Geosciences, Energy Research, Research into civil security</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administered by</td>
<td>DKFZ Heidelberg, Jülich Project Management Agency in the Jülich Research Center, Karlsruhe Project Management Agency, water technologies and disposal (PTKA-WTE, KIT), Project Management Agency c/o German Aerospace Center (PT-DLR), VDI-Technologiezentrum GmbH</td>
</tr>
<tr>
<td>Year founded</td>
<td>1973 (MOST), 2000 (MOITAL)</td>
</tr>
</tbody>
</table>

### Support available

| Regular funding research projects | • cancer research  
• water technologies  
• research into civil security  
• marine sciences |
| Feasibility studies on biotechnologies (Bio-disc) | biotechnologies (Bio-Disc) |
| Young scientists exchange program in water technologies | water technologies |
| Summer/ winter schools cancer research | cancer research |
| Industrial Cooperation research projects | • biotechnologies (Bio-Disc)  
• water technologies  
• research into civil security |

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Sewage treatment, storage and reuse, investigation and remediation of groundwater, processing of potable water, health aspects of potable water provision, and integrated water resources management. The overall objective of the projects is to increase the availability and quality of utilizable water.

Since 2000, the Young Scientists Exchange Program (YSEP) has been offering everyone in the field – from students pursuing degree programs to post-docs – a way of spending up to six months researching at partner institutions located in Germany and in Israel.

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**Initial contact**

Internationales Büro des BMBF im Projekträger beim DLR e.V.  
Sabrina Legies  
Tel.: +49 (0) 228-3821-1421  
Sabrina.legies@dlr.de  
http://www.internationales-buero.de/de/1639.php  
http://www.cogeril.de/
Since 2008, manufacturers have been entitled to carry out joint 2 + 2 projects. This is in conjunction with the industrial R&D cooperation being staged in the area of water technologies.

**Multilateral water technology cooperation**

Launched in 1997 was a multilateral consortium project in which German, Israeli, Jordanian and Palestinian research institutes are participating. This transnational cooperation is being undertaken to enhance the appreciation of the relationships prevailing in the aquifers found in the Valley of the Jordan, which is found between the Sea of Galilee and the Dead Sea.

This successful and multilateral water technology cooperation was pursued via the staging of a second phase of support in 2000 – 2005. It was expanded in mid-2002 to encompass an exchange program for pre-docs at the institutes participating in the project. The publication of a report on the sustainable utilization of water resources found on both sides of the Jordan marked the conclusion of the project at the end of 2005.

Being implemented since 2006 has been a multilateral project on the subject of integrated water resources management in the Lower Jordan Rift Valley. The project’s name is SMART – Sustainable Management of Available Water Resources with Innovative Technologies. Pursuing SMART is a consortium comprised of 17 partner institutions. These are universities, research facilities, public sector authorities, companies and NGOs from Israel, the Palestinian Autonomous regions, Jordan and Germany. The objective of this multidisciplinary project is the development of approaches to integrated water resource management transferable to and in semi-arid regions. Entailed in this is the comprehensive assessment of all utilizable –
and previously untapped – water resources found in the project area, with this comprising ground water, sewage, water with a high salt content and flood water. Trans-project coordination has enabled the project’s efforts to be configured to accord with those of such other projects in the region as GLOWA. Also set up was an exchange of findings. Launched in 2010 was the second phase of the project. Its objective is to set forth the successful activities of the first phase, and to enhance the applicability of the findings ensuing from the demonstration project. This will pave the way for a full-scale implementation of them.

**Marine sciences and geosciences**

The working relationship with Israel in the area of oceanography began in 1995. The topic of the first German-Israeli consortium project was the development of biological indicators capable of being used as an early warning system in seas in Israel (the Mediterranean and Red Sea) and in Germany (North Sea). The project features a pan-project evaluation of statistics. The promulgation in 2002 of the action plan for German-Israeli Cooperation in Marine Sciences and Geosciences induced the reconfiguration of the area of cooperation. Focuses of the joint projects being undertaken since 2006 are the interactions between ocean, land and atmosphere; seismic and other natural risks; and changes in marine ecosystems serving as indicators of global change.

In January 2010, the German Federal Ministry of Education and Research (BMBF) and the Israeli Ministry of Science and Technology (MOST) decided to focus during the new period of the German-Israeli cooperation in marine sciences on the research field of “impacts of climate change on oceanographic conditions and on coastal ecosystems”. To further this overall objective, proposals are to focus on the topics of the increasing of water temperature, acidification of seawater, shifts of water circulation, changing biodiversity and marine genomics.

**Energy research**

Support for the area of energy research was forthcoming from 1974–1998 from funds provided by BMBF. Subsequent to that, the responsibility for the program supporting energy research was transferred to Germany’s Federal Ministry of Economics and Technology. In 2003, parts of the program were reassigned to the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. The working relationship with Israel remains, however, part of the BMBF-MOITAL-MOST cooperation.

Projects supported were initially primarily in the area of solar energy research. Topics were photovoltaics (the development of solar cells), and the conservation and storage of energy. Today, the thrust is the researching of solar, wind and hydraulic energy.

**Research into civil security**

The overall political situation has joined with the daily threat to its population of experiencing a terror attack to give Israel unique capabilities in the area of responding to new security challenges and to scenarios of perils. The ever-stronger threats posed by terrorism and natural disasters have also caused Germany’s government to accord a high priority to conducting research into civil security. This manifested itself in the launching at the beginning of 2007 of the first proprietary research program in this field.

Israel and Germany intend to undertake scientific, research and industrial projects teaming up their expertise in civil security. Objective of this is the
Cooperation programs

The protection of such mission-critical infrastructure as energy and water supply systems and transport (of passengers and freight) grids. The outcome is to be the maintenance of the high level of security enjoyed by citizens.

The initial and joint notification was undertaken in 2009. It was followed by the selection of seven projects for support. Objectives are the development of security-enhancing products and solutions, the expediting of innovation processes and, through this, the securing of jointly-held competitive edges on international markets for high-tech products and services.

Vocational education

The German-Israeli Program on Cooperation in Vocational Education is operated by BMBF and MOITAL, and was commissioned in 1969. It is managed by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), which is working on a commission from BMBF.

The years of inception of the program were devoted to providing in Germany qualifications to Israeli professionals. As of 1976, professionals and managers were given the opportunity of getting to know the vocational education system of the other country, with this being undertaken via trips providing expert briefings. Workshops and bilateral cooperation projects constitute the main forms of inculcation.

The workshops offer German and Israeli professionals and managers a way of intensively exchanging their experience and expertise in such specialized areas of vocational education as ongoing training in IT and as going into business for yourself in the area of vocational education.

Laser and optical technologies

LASER 2000 was a BMBF program whose focus within the working relationship with MOST was the development of the technologies producing a new generation of lasers and new areas of application for them. The cooperation was reconfigured in 2004. The objective is now to provide support to companies’ R&D projects. The Israeli partner is now MOITAL’s Office of the Chief Scientist (OCS).

Nanomaterials and chemical nanotechnologies

In 1995, the cooperation existing since 1981 between BMBF and MOST in the area of materials engineering was revamped. In accordance with BMBF’s then Ma-Tech program of materials research, the new focuses of the cooperation were the developing of magnesium alloys and of materials required in advanced batteries.

The publication in 2003 of BMBF’s WING (short in German for “innovative materials used by manufacturers and by society”) program marked the introduction of a new model of cooperation for international projects. The model foresees at least two partners from industrial and research from each country’s forming part of the consortium project. In receiving support, the research facility can serve as either a subcontractor or an independent partner. German partners receive support from BMBF; the Israeli ones from OCS/MOITAL. Current WING focuses include computational material sciences, lightweight structures and electromagnetic materials.
German-Israeli Foundation for Scientific Research and Development (GIF)

Headquartered in Jerusalem, the German-Israeli Foundation for Scientific Research and Development (GIF) was founded in 1986. It is an independent, Israeli legal person.

The Foundation’s objective is the provision of support to civil research and development projects advancing the interests of both countries in the areas of basic and applied research.

The Foundation uses the revenues arising from interest paid upon its foundation capital – equally supplied by both Israeli and German sources – to finance its meeting of its responsibilities. The countries’ governments resolved to increase GIF’s capital by €50 million during 2005 – 2007. This led to the foundation capital’s now amounting to €211 million. Interest revenues yield between €8 million and €10 million a year in available funds.

The foundation’s Board of Governors is its decision-making body. Each country is equally represented on the Board, to which the respective ministers of research as well as scientific personnel from both countries belong. The selection of the recipients of the foundation’s funding is made employing a strict process of evaluation, in which experts from Germany, Israel and other countries participate. GIF’s template in this area is the selection procedure

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**German-Israeli Foundation for Scientific Research and Development (GIF)**

<table>
<thead>
<tr>
<th>locations</th>
<th>Jerusalem, Munich</th>
</tr>
</thead>
<tbody>
<tr>
<td>year of founding</td>
<td>1986</td>
</tr>
</tbody>
</table>

**Programs of funding**

**Regular support research programs**
- **fields of support**: all disciplines of the sciences and humanities, 2 year cycle
- **application eligibility**: German and Israeli research facilities
- **partner program**: yes
- **amount of funding**: max. €200,000
- **term of support**: 3 years
- **call for proposals**: yearly, in summer

**Support of young scientists initial research by post-docs**
- **disciplines**: medical research, life and natural sciences, humanities, social sciences
- **partner program**: no
- **amount of support**: max. €40,000
- **term of support**: 1 year

**Contact**

Jerusalem:
Tel.: +972 (0) 2-6233814
E-Mail: gif-info@gif.org.il

Munich:
Ms. Leie
Tel.: +49 (0) 89-31873106
E-Mail: gif.leie@helmholtz-muenchen.de

**Website**
http://www.gif.org.il/
Cooperation programs

used by DFG (German Research Foundation), which served as one of GIF’s role models in its founding phase. The Board convenes, as a rule, once a year, with Germany and Israel alternating as hosts.

GIF provides funding to some 40 projects a year. As of October 2010, the foundation had approved 1,056 bilateral projects in all disciplines of science. GIF had supplied a total of €174 million in funding. The original average amount of funding came to €175,000 per project. Since 2000, this average has been at the €200,000 level. The term of funding amounts to three years. Applications can only be jointly submitted by German and Israeli researchers. In 2006, a process of preliminary selection was commenced. Applications, evaluations and ranking procedures are now carried out electronically via GIF’s Website.

GIF’s programs of funding are complemented by the staging – on an alternating basis – of symposia on current topics of research.

Launched in 2000 was a program for young scientists. It enables those scientists who are younger than 40 years old and whose doctorate was awarded less than seven years ago to submit, on an independent basis, an application for research funding. As of 2010, applications for 1,000 projects had been submitted. Of them, 244 had been awarded funding.

In November 2008, the German-Israeli Foundation for Scientific Research and Development (GIF) celebrated its 20th anniversary. Guests of honor were Prof. Annette Schavan and Galeb Majadle, Israel’s then Minister of Science, Culture and Sport.

Overview of applications and approvals since the founding of GIF and until 2010
German-Israeli Project Cooperation (DIP)

In 1996, BMBF created the German-Israeli Project Cooperation (German abbreviation: DIP) to provide support to advanced projects undertaken in bilateral working relationships.

Since the beginning of 2008, DFG – German Research Foundation has borne the responsibility – transferred from BMBF – for the German-Israeli Project Cooperation. This program of excellence sets up the framework for the supporting of innovative research projects undertaken by Germans and by Israelis. These projects are not subject to any limitations of disciplines or topics. The process of application features two steps. The Israeli facility that has secured its eligibility to submit applications conducts an in-house call for project proposals, and then makes a selection. Each facility gets to submit two proposals on joint research projects to the DFG. The annual deadline for the submission of tenders is March 31st. Eligible to submit proposals are Bar-Ilan University, the Ben-Gurion University of the Negev, University of Haifa and Technion Haifa, the Hebrew University in Jerusalem, Tel Aviv University and the Weizmann Institute in Rehovot. Eligible to be cooperation partners in Germany are scientists active in the country’s science system. They are not entitled to submit applications. Rather, they have to be proposed as cooperation partners by the Israeli side.

Up to 14 projects are proposed each year by the research authorities of the Israeli facilities. Of these, three or four projects are selected each year for support, whose term is a maximum of five years, and whose approved amount can be up to €1,655,000. A subcommittee of DFG’s main committee makes the selection. In doing such, it employs the expert appraisals it has commissioned. The subcommittee then relays its proposals as to recipients of support to the main committee. The program was set up in 1996 by BMBF to be an instrument for the supporting of projects of especial relevance and topicality. Since that time, 45 projects – in all disciplines – have received funding. Focuses are in the disciplines of physics, chemical biology and medicine. Nearly all of the applications submitted have been classified by appraisers as being of very high quality. The exceptionally high level of the applicants is indicated by the conferring of the Nobel Prize for Chemistry upon Prof. Aaron Ciechanover, who received support from DIP from 1999–2003.
Foundation Martin Buber Society of Fellows in the Humanities

The Foundation Martin Buber Society of Fellows in the Humanities at the Hebrew University, Jerusalem, is a German foundation financed by the Federal Ministry of Education and Research (BMBF). Its objective is to foster inter-disciplinary and inter-cultural academic discourse among outstanding young scholars from Israel and Germany and with senior colleagues from around the world. Research is carried out at the Hebrew University of Jerusalem.

The setting up of the Society ensued from an initiative of Prof. Annette Schavan, Germany’s Federal Minister of Education and Research, and of Prof. Sarah Stroumsa, the Rector of the Hebrew University. The initiative has set itself the objective of encouraging and supporting research undertaken in a broad range of fields in the humanities and social sciences by young Israeli and German scholars at the stage of post-doctoral studies (along with a limited number of doctoral fellows).

To that end, the Foundation promotes path-breaking research of broad cultural meaning and relevance. In doing such, it creates a vibrant community of scholars who have acquired a strong foundation in their chosen discipline, who are willing and able to embark upon broader, imaginative projects, and, while doing such, who are exploring new disciplines and methodologies.

The Martin Buber Society of Fellows was officially launched in February 2010 at an event attended by Minister Schavan and by the President and Rector of the Hebrew University.

A committee of scholars from Israel, Germany and USA selected the first cohort of Fellows, who started their work in September 2010.

In forging ties to their peers, the Fellows also participate in bi-weekly colloquia and in workshops, field trips, and other cultural and academic activities.

### Foundation Martin Buber Society of Fellows in the Humanities

**Fellowships enabling on-site research by pre-docs and post-docs**

<table>
<thead>
<tr>
<th>location</th>
<th>Hebrew University, Jerusalem</th>
</tr>
</thead>
<tbody>
<tr>
<td>founding date</td>
<td>2009</td>
</tr>
<tr>
<td>fields</td>
<td>humanities and social sciences</td>
</tr>
<tr>
<td>items funded</td>
<td>lump sum allowance, travel expenses and accommodation</td>
</tr>
<tr>
<td>term of support</td>
<td>post-docs: 2 years</td>
</tr>
</tbody>
</table>
| contact                   | Ms. Baron  
Tel.: +972 (0) 2-5883901  
E-Mail: buberso@mscc.huji.ac.il |
| Website                   | http://buberfellows.huji.ac.il/ |
The first ten Fellows to receive a scholarship from the Martin Buber Society grouped around Prof. David Shulman, the Society’s director.

In March 2011, the committee selected the second cohort of Fellows (five from Israel and five from Germany). They will join those from the current group who wish to extend their fellowship (subject to review by the Academic Committee). Its first year has demonstrated that the Society embodies the ideal of creative scholarly cross-fertilization. An asset is its wonderfully conducive setting of the ancient city of Jerusalem, cradle of religions and site of cultural innovation for the last 3,000 years.

Further activities

Laurentius Klein Chair for Biblical and Ecumenical Theology

On February 4, 2010, Prof. Annette Schavan, Germany’s Federal Minister of Education and Research (BMBF), commissioned in Jerusalem’s Dormitio Abbey of the Benedictine Order the Laurentius Klein Chair for Biblical and Ecumenical Theology. The chair receives funds from BMBF and forms part of Jerusalem’s Year of Ecumenical Theology Studies. The Year was created in 1973. The program offers German-speaking Catholic and Protestant students the opportunity of spending two semesters in the Holy Land. Support is also forthcoming in the form of scholarships provided by DAAD. As of this writing, 900 interested parties had taken advantage of this offer. The Chair’s first holder is Professor Margareta Gruber, a Franciscan who herself participated in the program during 1983–1984.

The setting up of the Laurentius Klein Chair forms part of the efforts to follow up and sustain in Israel the impetus ensuing from the German-Israel Year for Science and Technology.

Young Scientists Contest

BMBF confers each year a special prize upon three Israeli high school students who are among the winners of the Israel Young Scientists Contest.

The Young Scientists Contest is comparable to Germany’s Jugend Forscht contest. Eligible are young persons (between 15 and 20 years old) conducting research projects in the natural sciences and humanities.

Students upon whom the special prize has been conferred receive three weeks at a research facility or at a university in Germany. Special programs – ones configured to meet winner wishes – are then put together for them there. BMBF has established this prize to showcase in Israel the benefits of studying and researching in Germany. Host in 2009 was the RWTH Aachen; in 2010, the TUM in Munich. The Israeli students and their escorting personnel attend courses held at the universities or at research institutes not affiliated with universities. These trips also give the students the opportunity to get to know Aachen, Munich and various other German cities.
EU and EUREKA

European programs and initiatives

One of the most significant developments over the past few years has been the progressive networking of Israel and Europe in the area of the sciences. During this time, Israel has grown closer and closer to the majority of the other European research organizations and associations, be it in the form of a full member or as an associated participant having observer status.

Since 1996, Israel has been an associated partner of the European Framework Research Program (FP). The importance of European research to Israel is shown by the large number of Israeli researchers taking part in cooperation projects. The number of projects featuring such a participation came to 588 in FP6, and 754 (so far) in FP7. Israeli institutions are also involved in European-level networks, the ERA-NETs and INCO-NETs. Israeli activities for the research framework program are coordinated by ISERD, an inter-ministerial directorate in which MOITAL, MOST, the Council for Higher Education, and the Israeli Ministries of Finance and of Foreign Affairs are represented.

With this holding true for both FP6 and FP7, Israel has forged the largest number of partnerships with Germany in these cooperation projects, followed by – with the precise order depending upon the framework – France, the UK and Italy.

The main topics of the Israeli projects and of those featuring German participation are in the fields of information and communication technologies (ICT), the life sciences, health research and the nanotechnologies. Israel’s participation in FP7 also takes the form of developing research infrastructures.

In addition to that, Israel is an active partner in networking activities of the EU, the so called ERA-Nets. Israel is taking part in 17 ERA nets and in a further 4 ERA-Net+ projects. The largest participation is that of the Ministry of Health (9 ERA nets) and of the Ministry of Agriculture (6 ERA nets). MOST is taking part in a single ERA net and in a single ERA-Net+, both of which do not have any German participation. Via ISERD, MATIMOP is taking part in an ERA-Net+.

Israel has been since 1995 an associate member of the European Center for Nuclear Research (CERN). Support for the Israeli scientists participating is provided by the Ministry of Industry, Trade and Labor, the Ministry of Science and Technology, the Israeli Science Foundation.

Israel has also been since 1999 an associate member of the European Synchrotron Radiation Facility (ESRF) in Grenoble. Israel supplies 1% of the ESRF’s budget. This equips Israeli scientists with access to this large-sized research facility.

Israel is further a founding member of the European Molecular Biology Organization (EMBO) and of the European Molecular Biology Labor (EMBL). The country is also member of the European Scientific Foundation and of the European Academy, and has been granted observer status for the bodies of the OECD.

Concluded upon on March 17, 2004 was an agreement between the EU and Israel setting up the latter’s participation in the GALILEO program, which implements Europe’s satellite navigation grid initiative.

EUREKA

During Germany’s chair of EUREKA in 1999/2000 and at the country’s initiative, Israel was admitted as a full member to the European research initiative. Along with the bilateral agreement in place between Israel and Germany, EUREKA has offered for the last decade another conduit for the technological cooperation between Israeli and German companies and research facilities. A highpoint of German-Israeli ties within the framework of EUREKA came in July 2010, during which Germany handed over the organization’s presidency.

Israel’s participation in EUREKA takes the form of taking part in 94 current projects, corresponding to 13% of the total number. Fifty-one projects featuring participation by Israel have already been concluded. Sixty-nine of the current projects are being led by Israel. Eight projects feature German-Israeli cooperation.

A special thrust of the EUREKA projects featuring Israeli participation is ICT. Activities in this area range from the designing of new processors and chipsets to the developing of applied enterprise software
and the setting up of emergency communication systems. Projects from the fields of medicine and biotechnologies enjoy especial interest. Being pursued are the development of medications alleviating Alzheimer’s and the planning of new bioreactors.

The widespread interest in forming part of EUREKA’s clusters has caused a stepping up of Israel’s participation in them. As of this writing, Israel is a partner in two of the six current umbrellas. German and Israeli companies are taking part in five of the seven current clusters. These are in a wide range of areas:


Israel contributes €5 million a year – as much as France or Germany, by way of an example – to Eurostars. This program is designed to provide support to research-driven small and medium-sized enterprises, and was jointly created in 2008 by EUREKA and the European Commission.

**COST**

Since 1971 COST (Coopération européenne dans le domaine de la recherche scientifique et technique – “European cooperation in the field of scientific and technological research”) has been providing a framework for the European-wide coordination of research undertaken on the national level in all fields of science and technology.

A total of 34 member countries as well as a large number of facilities worldwide participate in the program and work together in a variety of transdisciplinary networks. Israel is a cooperating partner in COST. As such, it is not entitled to vote in the organization’s CSO (Council of Senior Officials) and DC (Domain Committee). Israel is, however, a fully-eligible COST member country at the operations level. As of this writing, Israel is involved in 115 of the 223 COST measures currently being pursued. Of these, Germany is also participating in 113 of them.
Programs of German funding organizations and foundations

Funding organizations

German Research Foundation (DFG)

The working relationship between the DFG and Israel dates back to the 60s, and is partially based upon an agreement reached in 1970 with the National Council of Research and Development (NCRD) on an exchange of scientists and on the joint funding of bilateral symposia. This cooperation is being pursued today with the Ministry of Science and Technology (MOST). In addition, in force since 1993 has been an agreement on scientific cooperation with the Israel Academy of Science and Humanities.

The goal of the working relationship maintained since 1995 with the independent Israel Science Foundation (ISF), whose responsibilities are similar to those of the DFG, is to pursue the dialogue leading to the development of joint ways of providing funding. In the era preceding that, the support provided to German-Israeli research projects by the DFG was primarily based on also providing co-financing of the Israeli component of a cooperation involving a project whose application was placed using a standard procedure. An applicant can only be the German scientific partner in Germany. A considerable portion of the research projects was also funded within the areas of special-purpose research maintained by the DFG. The same applies to DFG’s priority programs, in which individual Israeli scientists can join with German groups in participating in proprietary subprojects.

In 1995, DFG became the first German organization to fund – via a dedicated program – trilateral projects of cooperation between German, Israeli and Palestinian scientists. These employ a two-step procedure similar to the one used in German-Israeli projects, and have the additional option of also applying for further funds for the Palestinian group. The preliminary applications are to be submitted on April 1 and October 1 of the year. A limited number is selected from these. These initiatives, in turn, then begin upon the path of submitting a full-scale project application.

As of mid-2010, 59 projects had been approved in this program, including a number featuring participation by a Jordanian partner. Especially great interest on the part of the Israelis is shown by the Hebrew University.

The DFG became the first German organization of Germany’s science community. Its prime object of support is research carried out at the country’s institutions of higher education in all disciplines. The DFG finances research projects and fosters working relationships among researchers, advises parliaments and official bodies on scientific issues, and encourages ties between the research and business community and to non-German scientists. DFG also advocates the interests of research on the international level and maintains bilateral scientific relationships with a large number of states. A special area of focus is the promoting of a pipeline of young scientists.

The basis of DFG’s entire research is the funding of individual projects and research cooperation. The latter takes the forms of supporting specialized areas of research, research centers, post-graduate and priority programs and research groups, and research infrastructure (for instance: “Meteor”, the research ship; and the IFQ Institute for Research Information and Quality Securing). A further field of support is the maintenance of a library of science, with this activity entailing the development of new structures of information in institutions of higher education. The DFG also facilitates the supplying and replacing of large-sized devices needed by scientists staffing institutions of higher education.
Max Planck Society for the Advancement of Science (MPG)

The longest standing pillar of MPG’s working relationship with Israel is the one set up with the Weizmann Institute of Science (WIS). The organizations’ joint research initiatives lead to the constituting of networks comprised of the institutes’ scientists and to the education of young scientists. An example of such is the working relationship maintained by the International Max Planck Research Schools (IMPRS) and the WIS’ Feinberg Graduate School.

Via its institutes, MPG has also forged ties to Israel’s six universities. Especially worthy of note is the multidisciplinary relationship maintained with the Hebrew University. These close scientific relationships have been conducive to getting access to joint projects funded by European authorities. The Max Planck Institutes have also been successfully using the funding instruments provided by such German-Israeli organizations of research support as the German Israeli Foundation (GIF) or the DIP program for German-Israeli project cooperation. The total number of projects jointly undertaken by Max Planck institutes and their partners in Israel came to 122 in 2009; that of Israeli scientists researching at the Institutes to 95.

Max Planck Society (MPG) is the sole shareholder of Minerva Stiftung GmbH (see page 10). Operated employing funds provided by Germany’s Federal Ministry of Education and Research, the Minerva Foundation forms part of the Max Planck Society, so as to maintain the former’s standards of scientific quality and of science-driven processes of evaluation in the funding of Israeli research.

For more than 60 years, MPG has stood for exceptional and results-oriented basic research into the life and natural sciences and into the humanities. In 1948, by being constituted as a registered association, the MPG assumed the succession to the Kaiser-Wilhelm-Gesellschaft, which had been founded in 1911.

Some 20,400 persons work and research at MPG’s 80 institutes and research facilities. Of these, some 4,900 are permanently employed scientists. A further 7,000 staff members in laboratories are students, pre-docs, post-docs and guest scientists. The 2009 budget of the Max Planck Society came to some €1.3 billion.

Precondition for pursuing advanced research and interdisciplinary thought is the maintenance of intensive working relationships with scientists and research facilities located in Germany and abroad. The MPG’s 2,000 cooperation projects are being undertaken with nearly 6,000 partners in more than 100 countries. There are, in addition, more than 40 partner groups. Located in Asia, Eastern Europe and South America, these groups pursue activities that include the setting up of a partner institute in Shanghai and the founding of Max Planck Centers in such places as India.

German Academic Exchange Service (DAAD)

Through the provision of scholarships, DAAD has been participating since 1960 in the forging of scientific working relationships. These scholarships fund research by doctoral candidates and young scientists, research sojourns by scientists, attendance of summer courses offered by institutions of higher
education or involving the inculcation of foreign languages, studying in Israel by German students and graduate students, trips of study, and the placing of German teachers (and especially those specialized in German language and studies) at Israeli universities.

Since 1960, the DAAD has provided several hundred graduates of institutions of higher education with research scholarships capable of being extended. In 2009 alone, a total of 417 persons received support from DAAD’s range of funding instruments. Of them, 168 were Israeli students (including graduate ones), scientists, administrators and artists; and 249 were German students and scientists. The latter mainly receive support enabling brief stays in Israel. A number did, however, secure financing for stays of two or more years.

The research scholarships provided by DAAD are primarily utilized in Israel by doctoral candidates and young scientists mainly active in the areas of the humanities (in Jewish studies), political science, sociology, history, art and music. In 2009, 23 Israelis received such a scholarship, with a further 20 being awarded one for a language course.

In the same year, seven German students (including graduate ones) and doctoral candidates received scholarships to pursue in Israel their studies of humanities and of the social and natural sciences. A focus of DAAD’s activities in Israel is the furnishing of partial scholarships to German theology students. Since the inceptions of the program more than 30 years ago, some 700 such students have received this support, which went in academic year 2009/2010 to 21 of them.

In addition and via IÄSTE (International Association for the Exchange of Students for Technical Experience), 17 internships were arranged in 2009 for Israeli students, with the same number going to German ones. In academic year 2000/2001, the Walter Benjamin Chair was established at the Department of German at the Hebrew University in Jerusalem. Holders of the Chair have been renowned professors from Germany of German studies. In 2009, DAAD also provided support to two editorial offices and to two long-term lectureships in Israel. In autumn 2007, the Hebrew University in Jerusalem and the University of Haifa each launched the setting up of a center for German studies. Each is receiving funding from DAAD, and each is focusing on conducting interdisciplinary research and teaching leading to a multifaceted, scientific and ambitious scrutiny of post-1945 Germany and Europe.

Alexander von Humboldt Foundation (AvH)

The Alexander von Humboldt Foundation has provided Humboldt research scholarships enabling 151 Israeli scientists to undertake long-term research sojourns in Germany. The Foundation has also supplied Feodor Lynen research scholarships permitting 15 young German scientists to conduct long-term research in Israel. Nearly half of these recipients are active in the natural sciences; with a further 43% and 8% in the humanities and engineering. In January 1991 the Alexander von Humboldt
Each year, thanks to the Alexander von Humboldt Foundation, more than 2,000 of the world’s leading scientists conduct research in Germany. Headquartered in Bonn-Bad Godesberg, the Foundation was founded in 1953.

Foundation reached an agreement with the Israeli Ministry of Science and Technology (MOST) foreseeing the reciprocal conferring of the Lise Meitner-Alexander von Humboldt Research Prize. Germany’s Federal Ministry of Education and Research provides the funding for the country’s participation in this area. As of this writing, a total of 97 Israeli scientists had been awarded research prizes by the Alexander von Humboldt Foundation.

Forty-nine Humboldt scholars are currently working at the Hebrew University of Jerusalem. A second local area of focus is formed by the 43 Humboldt scholars at Tel Aviv University. Corresponding figures for Weizmann Institute in Rehovot and for the University of Haifa and the Technion in that city are 19, 16 and 16 respectively. The Association of Humboldt Alumni in Israel stages on a regular basis annual get-togethers.

In conjunction with the Frontiers of Research Program, the Alexander von Humboldt Foundation has been holding since 2009 the German-Israeli Frontiers of Humanities symposia. These interdisciplinary conferences for young Israeli and German scholars are organized along with the Israel Academy of Sciences and Humanities. They are held once a year. Venue alternates between Germany and Israel.

To foster the constituting of regional and scientific networks among the Humboldt scholars, the Alexander von Humboldt Foundation supports...
Alexander von Humboldt was an explorer and cosmopolitan who fought for the freedom to research. He was also a humanist and a patron of young and brilliant scientists. In 1860, shortly prior to his death, the Alexander von Humboldt Foundation for Natural Research and Travel was constituted. The prime object of its support was until 1923 and the inflation-caused loss of its foundation capital the supporting of trips undertaken abroad by German scientists for purposes of research. The German government of the time founded in 1925 a new Alexander von Humboldt Foundation. Its purpose was primarily to support stays by non-German students (with this later being extended to include scientists and doctoral candidates) in Germany. This foundation ceased operations in 1945. On December 10, 1953, in response to an initiative launched by former Humboldt guest scientists, today’s Alexander von Humboldt Foundation was set up by the Federal Republic of Germany. The foundation is non-profit-and under private law. Its headquarters are in Bonn Bad-Godesberg.

The foundation provides research scholarship and prices enabling highly-qualified scientists from abroad to conduct long-term research in Germany. The foundation also fosters the relationships among scientists ensuing from these activities. Its provision of initial support also comprises a large range of funding going to its alumni. The Alexander von Humboldt Foundation provides young German scientists with Feodor Lynen research scholarships enabling them to work with former Humboldt guest scientists at their home institutions. Since having been relaunched, the Alexander von Humboldt Foundation has provided support to more than 24,000 scientists from more than 130 countries.

initiatives launched by Humboldt associations and by the scholar themselves. This takes the form of staging of “Humboldt lectures”. On the occasion of the German-Israeli Year of Science and Technology in 2009, one such lecture – on “When Sciences and Humanities meet” – was staged at the Hebrew University of Jerusalem. Held in March 2010 in Beersheva and Jerusalem was the Humboldt lecture on “Thirty years of German-Jewish studies”.

Political foundations

Friedrich Ebert Foundation (FES)

In 1978, through the commissioning of its office, the Friedrich Ebert Foundation (FES) became the first German political foundation to be officially represented in Israel. The office’s first projects were undertaken with partners from Histadrut (Israel’s organization of trade unions) and representatives of the country’s social democrats.

Since that time, FES’ activities in Israel (www.fes.org.il) have been expanded to comprise a broad spectrum of topics. These are covered by securing input from partners found in the realms of politics, societal affairs, the sciences and culture. A central thrust of the office’s work is the consolidation of German-Israeli relationships. Its programs involve the staging of everything from courses on leading youth groups to joint workshops for union members and programs of consultation providing German politicians with specialized knowledge. A further focus is proactive commemorative work. FES’ striving to come up with new approaches to the Holocaust has led to its devoting itself over the past two years to the topic of the ways in which the Shoah’s survivors helped build and shape the state of Israel and ensure its survival. These efforts have constituted a major contribution to the inner-Israeli debate on this subject.

The large number of ethnic, social and political conflicts has caused FES to forge working relationships with Israel partners. These are designed to promote democracy, peace, equal opportunity and social justice. These partners are both the affected parties, with these including Israel’s Palestinian-Arabian minority and Russian-speaking Israelis. A thrust of the foundation’s activities in this area is working with young persons, and, by doing such,
fostering their involvement in political and social processes. FES’ partners are also those making political and societal decisions in Israel and experts in these fields. These partnerships lead to the formulation of hands-on, practicable solutions to a wide range of problems.

FES’ support of the peace process in the Near East takes the form of bringing together – deploying its regional-level network of offices and contacts – representatives of a wide range of nationalities, religions and political positions. The primary objective is the inducing and fostering of an Israeli-Palestinian dialogue. Taking part in the corresponding projects are both politicians and experts and representatives of civil societies. The extraordinarily difficult political conditions prevailing impart to FES – since it is an international and “neutral” NGO – an especially important and sensitive role.

Working closely with DGB (Germany’s Association of Unions) and its member unions, FES has been fostering societal dialogues in Israel. The objective is supporting the social partners’ efforts to take and become part of societal decision-making processes and configuration. The Israeli partners in this area are Histadrut (Israel’s organization of unions), the country’s association of employers, the Ministry of Labor and the courts of labor affairs.

FES also pursues the objective of playing a part in the further development of European-Israeli relationships. Working with renowned institutions and high-ranking decision-makers on both sides, the FES has managed over the past few years to establish a stable network of dialogues and consultancies. These, in turn, have given important impetus to the consolidation of Israeli-European relationships.

In 2009, the Israeli office of the Friedrich Ebert Foundation conducted some 100 measures and activities in these five areas.
Friedrich Naumann Foundation for Freedom (FNSF)

The Friedrich Naumann Foundation for Freedom (FNSF) has been active in Israel since 1983. The focus of its efforts has been since 2007 the “Liberal Project”. Its objectives are the bringing together of Israel’s liberals in the areas of politics, business and societal affairs and the reviving of Israel’s liberal movement. To realize these objectives, the foundation forges ties to liberal-minded organizations and persons, and stages programs of adult political education. Objects of these efforts are liberal-minded groups, liberal-minded multipliers and national and ethnic minorities. The latter include Israel’s Palestinian citizens and Russian immigrants.

The educational programs staged by the foundation and its partners cover such classic liberal topics as individual freedom and democracy, rule of law, free market economies and human rights. The programs also delineate such subjects’ pertinence to such current developments as conflicts in the Near East and intra-societal problems.

Other national and regional-level fields of activity are the fostering of the socio-political dialogue between the Jewish majority and the Palestinian minority in Israel, the staging of a dedicated program in this area, and the strengthening and promoting of German/European relationships with Israel.

The FNSF offers Israeli students the opportunity to take part in its program of scholarships. The foundation also maintains internships that are open to highly qualified applicants from Germany and from other European countries.

Hanns Seidel Foundation (HSS)

Located in Tel Aviv, the office for Israel of the Heinrich Böll Foundation launched operations in spring 1998.

The office is primarily active in four areas:

- climate policies, environmental justice and sustainable development
- democratic participation and reform
- gender democracy
- international relationships and dialogue

The Foundation works with a large number of highly diverse partners – NGOs, academic institutions, decision-makers and other players – in undertaking its activities in Israel.

Heinrich Böll Foundation

This work is designed to reduce the divide between societal and ethnic groups, to increase the dialogue-capability of citizens, to convey basic values of democracy, and to foster the peace process in the region. The objects of these efforts are highly variegated, ranging from members of the lower classes, teachers at a certain school and decision-makers in administrative areas to high school pupils, and Bedouin and Palestinian women.

The work of HSS is comprised of the staging of seminars, courses, days of discussions, expert educational programs, teachers’ professional education and citizens-related activities. Its partners are exclusively such NGOs as Shatil in Israel and Al Muntada in the autonomous Palestinian regions.

A meeting with Israeli and Palestinian project partners in 2005
This work is pursued in the complex and multidimensional context of German-Jewish, German-Israeli and Israeli-Palestinian relationships, and of the Israeli-Arabian conflict.

The programs of the Israel office of the Heinrich Böll Foundation are funded by Germany’s Federal Ministry for Economic Cooperation and Development (BMZ). Its annual volume of financing comes to some €560,000.

The program of dialogues and networking funded by BMZ is complemented by the Foundation’s supporting of the Leo Baeck Summer University, which is staged every year at Berlin’s Humboldt University. The Summer University is attended by a group of students selected from institutions of higher education in the USA, Canada and Germany. The students investigate topics involving Jewish life.

**Konrad Adenauer Foundation (KAS)**

The Konrad Adenauer Foundation has been operating in Israel since 1980. Its primary objectives are the strengthening of democracy and rule of law in Israel and the fostering of peaceful coexistence between Israel and its neighbors and among Israel’s various ethnic groups. Another thrust is the maintenance and consolidation of the relationships between Germany and Israel. These efforts are increasingly being extended to encompass the Israeli-European dimension. In all three areas, KAS works with universities and researchers from Germany and Israel. The fostering of democracy and of rule of law is primarily undertaken by KAS through the working relationships forged with Israeli universities and scientists. The Foundation works with the Minerva Center for Human Rights at the Hebrew University in Jerusalem in promoting at academic conferences international dialogues on human rights and in emphasizing the role of international law in resolving current conflicts. In cooperation with the Jerusalem Center for Public Affairs (JCPA), KAS devotes itself to the articulation and discussion of intra-Israel social and political issues. International conferences and discussions among experts provide a platform for the advancing of possible solutions. The promoting of the economic interests shared by Israelis and Palestinians leads KAS to support the Israel Palestine Center for Research and Information (IPCRI). KAS’ working relationships with the Netanya Academic College, the Truman Research Institute for the Advancement of Peace at the Hebrew University, and the Jerusalem Institute for Israel Studies serve to foster the
Programs of German funding organizations and foundations

achieving of peaceful coexistence in the Near East. Investigated at academic conferences are such topics as the Israeli-Jordanian relationship and the societal foundation for a setting forth of the peace process. The role played by Arab citizens in Israeli society and politics has been the subject since 2004 of the Konrad Adenauer Program for Jewish-Arab Working Relationships. The Program was founded by KAS and by the University of Tel Aviv. KAS and the Center for Bedouin Studies and Development of the Ben-Gurion University of the Negev in Beer-Sheva research and support the integration of Bedouins into Israel’s advanced society. KAS is also active in the areas of German-Israeli and European-Israeli relations. Working with the Ben-Gurion University in Beer-Sheva and with the Adenauer Division for the Study of European Politics and Society located there, KAS organizes conferences and workshops looking at the future of Israeli-European relations. Participants at KAS-organized events include experts, decision-makers from Europe and Israel, and, especially, the young in the field. KAS’ close working relationship with the Helmut Kohl Institute for European Studies at the Hebrew University also serves to promote the consolidation of Israeli-European relations. Lectures and simulation workshops inculcate Israel’s young scientists with the basics of European politics and social life.

Private foundations

Bertelsmann Foundation

The activities of the Bertelsmann Foundation in Israel are centered on fostering encounters and exchanges of expertise among young managers from both countries. The relationship of Israelis and Germans in the years to come will be largely shaped by such successful teaming ups and mastering of shared challenges. To accomplish this, the German-Israeli Young Leaders Exchange was created in 2000. Its object is to initiate and facilitate future-oriented dialogues between young German and Israeli managers. Thrusts of the Exchange are the dissemination of information and the setting up of a network comprised of personal relationships. Some 300 managers from the political, business, media and cultural communities have participated in the II programs hitherto staged. Annually-held meetings of the network keep these participants in intensive contact, and enable them to work on topics of mutual interest.

The cooperation of the Bertelsmann Foundation with the German-Israeli Future Forum takes the form of staging the “X-Change for Competence. Connecting Societies. Developing Leadership” program. This implements a new approach to developing the expertise of Israeli and German managers. These are especially active in the tertiary sector.

This program provides a selected set of participants with the opportunity, in the four several-day modules held during the course of the year, to augment their management skills. The objective behind this is enabling them to join others in successfully shaping societal and political processes of change, to build bridges to players in their society, and to strengthen partnerships existing between Germany and Israel. The venue of the modules alternates between Germany and Israel. The modules are comprised of program segments permitting the participants to get to know the societies of both countries. The training sessions are carried out by a team comprised of Germans and Israelis. The participants’ defraying part of the session’s costs is foreseen.

The program has been designed to meet the needs of executives of between 30–45 years old who are responsible for staff members, who have managerial experience, and who work for companies in the tertiary sector.
Fritz Thyssen Foundation

Headquartered in Cologne, the Fritz Thyssen Foundation was founded in 1959 by Ms. Amélie Thyssen and her daughter Anita Countess Zichy-Thyssen to commemorate August and Fritz Thyssen. It was the first private foundation devoting itself to the sciences to be set up in post-World War II Germany. The foundation operates scholarship and exchange programs involving Israeli institutions. The foundation also provides support to projects being undertaken by Israeli researchers, and stages scientific conferences and lecture series in Israel. The foundation also supports the participation by Israeli researcher in corresponding activities in Germany.

Objects of support by the Fritz Thyssen Foundation are primarily found in the humanities. The focus in the area of “history, language and culture” is constituted by projects which could be described as involving “cultural sciences” and which feature an interdisciplinary outreach to the social sciences. Also taken into account are the research traditions of the “classic” disciplines of the humanities – philosophy, theology and archeology.

The “government, business community and society” area of the foundation provides support to research projects investigating the preconditions for and results of the processes of transformation characterizing today’s society. The area devotes itself to projects capable of being viewed as involving economics, jurisprudence, political sciences and ethnology.

The “molecular causes of diseases” area investigates illnesses caused by genetic defects or shaped by genetic factors. The latter involve complex diseases.

One current project being supported by the foundation’s humanities area is the one having been undertaken since 2007 by Professor Aliza Cohen-Mushlin, who works for the Jerusalem-based Hebrew University’s Center for Jewish Art. The project’s objective is the documentation and editing of illustrated Hebrew scripts. Created from the 13th to the 18th century, they form part of the collection of the Bavarian State Library.

Also receiving support from the foundation is another project being undertaken at the Hebrew University in Jerusalem. This one involves the molecular bases and causes of Parkinson’s, and is being carried out by Hermona Soreq and Hagai Bergman. A further project accorded support is being implemented at the Weizmann Institute in Rehovot. In it, Dr. Avraham Yaron is researching processes of protein production and their influence upon the somatosensory system. Employing a large number of sensory cells, this system provides us with a precise depiction of our body’s condition, and of its interactions with its environment.

One project being supported by the Fritz Thyssen Foundation deals with the documentation and editing of illustrated Hebrew scripts from the 13th to the 18th century. The photograph shows excerpts from a commentary on the bible made in 1233 and forming part of the collections of the Bavarian State Library.
Hubert Burda Foundation

The Hubert Burda Foundation concentrates its activities in Israel upon cultivating its working relationship with the Ben-Gurion University (BGU) in Beer-Sheva. It was here that Dr. Hubert Burda, a publisher, founded in 1999 the Hubert Burda Center of Innovative Communications. The Center fosters intercultural and future-oriented exchanges between media scientists, companies and politicians.

A current project is the Good Neighbors Blog (http://gnblog.com). The Website was set up in May 2007 and has since then assembled contributions from authors based in Egypt, Israel, Iraq, Iran, Jordan, Lebanon, Palestine, Saudi Arabia, Sudan and Syria. Young persons from the Middle East use the blog as the platform for the exchanging of information and ideas transcending countries and disciplines. The blog’s offerings are read by more than 30,000 people each month.

The interdisciplinary and international transfer of knowledge plays a key role in the cultivating of a society open to and tolerant of political trends and forthcoming developments. To achieve these traits, Hubert Burda Media also provides support to research projects being undertaken by the students at the University. These are presented at the annual BGU Project Days, which are highly regarded in Israel.

This partnership does not stop at the campus’ borders. By way of an example: Dr. Hubert Burda and Dr. Joseph Vardi, an Israeli who invests in high-tech companies, serve as patrons of Digital Life Design, an annual international conference on the digital lifestyle. More than 150 Israeli entrepreneurs and investors attended the January 2010 installment – the sixth all told – of the conference. It was held in Munich.

A further aspect of the involvement of the Hubert Burda Foundation in Israel is the provision of support to the education of academicians in Israel. This represents a setting forth of the tradition of Jewish-German thought. Dr. Hubert Burda’s efforts on behalf of Israel led to his receiving on November 2, 2006 the Leo Baeck Prize. Conferred by Charlotte Knobloch, this prize stems from the Central Council of Jews in Germany.

Volkswagen Foundation

Since having been founded in 1961, the Volkswagen Foundation has been providing a wide variety of support to research being jointly undertaken by Israel and by Germany. The first amount of support came to DeutschMarks 2 million. It was in 1963, and went to acquire equipment and to pay personnel working in the physics and physical biology schools of the Weizmann Institute in Rehovot.

The foundation has also devoted its resources to facilitating the founding of institutions. It donated in 1964 some DeutschMarks 354,000 for the commissioning of the Institute for Geography at the Hebrew University in Jerusalem. Funding from the foundation went in 1970 to the University of Tel Aviv’s Institute for International Relations and Institute for German History.

In 2004, the Volkswagen Foundation financed the pilot phase of the German Innovation Center (GIC), which forms part of the Interdisciplinary Center in Herzliya. The GIC’s objective is to showcase Germany’s scientific achievements to Israel’s academic community.

The foundation’s activities in Israel also comprise the fostering of exchanges between German and Israeli scientists. In the period extending to 1968, the foundation funded – via a program of exchange among holders of scholarships – more than 80 sojourns by German researchers at the Weizmann Institute as well as those by Israeli scientists in Germany. Also receiving support was an exchange between students of economics and social sciences. This was between the Friedrich Ebert Foundation and the Tel Aviv-based Fritz Foundation. The Volkswagen Foundation also funded a program of exchange involving the Max Born Chair of Natural Philosophy at the Hebrew University.

The foundation has a longstanding commitment to supporting German-Israeli cooperation projects. Since 1977, the foundation has been routing its activities in this area via the state of Lower Saxony’s Ministry of Sciences and Culture. The foundation has also been conducting an independent program that forms part of the so-called “Lower Saxony to the forefront”. This entails the provision of support to the sciences. Objects are especially institutions of
higher education and research facilities located in Lower Saxony. The recipients of the support, whose term of provision ranges from two to three years, are primarily the Jerusalem-based Hebrew University and the Technion in Haifa. Since 1977, more than 280 joint projects were supplied with some €26 million in support. These funds were equally split among partners in Lower Saxony and in Israel. The objects of the research are scientific – focuses are medicine, the natural sciences and engineering – in nature.

ZEIT Foundation

The Hamburg-based ZEIT Foundation Ebelin and Gerd Bucerius focuses its support of the sciences in Israel on the University of Haifa, which is home to the Bucerius Institute for Research into Contemporary German History and Society. Founded by the foundation, the Center serves as the venue for long-term and on-site researching by young scientists and for guest professorships. The Institute also stages prominently-attended conferences, series of lectures and public events. The Bucerius Institute also serves as Israel’s window to Europe. It fosters the dialogue on topics currently gripping society. The Institute facilitates exchanges between young scientists.

Offered since 2008 has been the Manfred Lahnstein Scholarship. It is given to two or three pre-docs in any of the disciplines offered at the University of Haifa. The scholarship enables a 10-month stay at the university, and can be used for the writing of a dissertation.

The ZEIT Foundation also provides support to a wide range of research projects at the University of Haifa’s Center for Multiculturalism and Educational Research, its Jewish-Arab Center for Brain and Behavior Research. The foundation also supports the Community Leaders project initiated by the Circle of German Friends of the University of Haifa. The project helps Arab students secure the requisite qualifications.

A further activity of the foundation in Israel is the annual staging of Bucerius Lectures in Jerusalem. Its partner is the Mishkenot Sha’ananim conference center. Guests since 2005 – each of them in autumn of the year – have included Prof. Gesine Schwan, Wolf Biermann and Prof. Jutta Limbach.
Research and education in Israel

Nearly a fifth of the civil research and development in Israel is conducted at its six universities, at the Weizmann Institute and at the large number of state and public sector research facilities. A large part of the research work is undertaken at the country’s clinics and by the numerous public sector companies in the country. These are in the fields of telecommunication, water supply and electricity and other forms of energy generation and provision. The predominance of research and development in the country is, however, undertaken by its manufacturers.

Universities

Basic research is nearly exclusively carried out by Israel’s universities and by the Weizmann Institute. The facilities strive to perform in the greatest possible number of disciplines, and to do so at the cutting edge of international research. Further emphases stem from the universities and from Israel’s government, which have set up Centers of Excellence in a set of select fields. These are staffed by excellent researchers or devote themselves to topics promising to play a major role in forthcoming technological development.

In addition, and since the mid-1990s, Israel’s universities have been taking on applied research. This trend has been augmented by the country’s being included in European-level research programs. Some 15% of all patents granted in Israel are held by an institution of higher education or by a member of it. Israel’s institutions of higher education have long maintained subsidiaries charged with assisting them in the marketing of their scientific findings and with the carrying out of CRO (commissioned research orders) for companies based in Israel and abroad. The government supports the universities in their facilitating of manufacturers’ taking on of prospective technologies. To this end, industrial parks have been set up in the vicinity of the institutions of higher education.

Almost half of the universities’ budgets stems, as a rule, from the state. The allocation of these is undertaken using a formula taking into account the number and quality of the institution’s scholarships and research findings, of the level of teaching and of student achievements. The rest of the universities’ funds come from tuition, third party funds – with these including those from such bilateral foundations as the German-Israeli Foundation for Scientific Research and Development (GIF) – and from CROs (see above). Prime source of such orders are EU programs. Further sources of financing are the tightly woven networks comprised of non-Israeli friends of the institutions and of Jewish organizations and private donors. The latter groups are primarily found in the USA.

The universities can also avail themselves of funding provided to research projects whose financing is channeled via special-purpose vehicles from the public sector’s budgets. With its responsibilities being comparable to those of DFG (the German Research Foundation), the Israel Science Foundation (ISF) provided in 2007–2009 some $US59 million to the funding of projects.

Public sector research facilities

In addition to the universities and to the Weizmann Institute, Israel is also home to a variety of special-purpose research facilities. The Israel Space Agency (ISA) forms part of the country’s Ministry of Science and Technology (MOST). The agency has been supporting and coordinating since 1983 a small-scale program in Israel of space research. The current thrust of the ISA is developing the infrastructure underpinning such research. The ISA is also pursuing such projects as the development of TechSAT, a small satellite which was launched in 1998 and which is still in operation, and of VENµS, a micro-satellite created along with CNES (France’s space organization). The successes achieved by Israel’s space program include the launching of AMOS (the country’s first geostationary telecommunications satellite), and of a number of Ofeq geomonitoring satellites. A high point of Israel’s space program came in January 2003, with the participation of Israel’s first astronaut, Ilan Ramon, in the 28th flight of the Space Shuttle. This pioneering feat had, however, a tragic end. All of the mission’s seven astronauts were killed during the Shuttle’s reentry into the atmosphere.
Also known as the “Volcani Center”, the Agricultural Research Organization (ARO) forms part of the Ministry of Agriculture. The ARO maintains seven institutes, and is the leading researcher into agricultural innovation in Israel.

Forming part of the Ministry of National Infrastructures, the Earth Science Administration operates the following three research facilities:

- Geological Survey of Israel
- Israel Oceanographic and Limnological Research Institute
- Geophysical Institute of Israel

Directly assigned to the Office of the Prime Minister is a further facility – the Israel Institute for Biological Research. Pursued at it is research – both basic and applied – in the areas of the biotechnologies, pharmacology and toxicology.

**Ministry of Science and Technology**

The objectives of the Ministry of Science and Technology are the implementation of Israel’s national research programs, the supporting and initiating of the development of new technologies, and the exploiting of the economic potential contained in scientific findings. Between 1995–2007, the Ministry invested $US173 million in supporting a program intermeshing strategic and basic and applied research. This program focused on the areas of IT, biotechnologies, electro-optronics, microelectronics, materials engineering, and environmental technologies (water quality). MOST also funds interdisciplinary research. This especially entails forging ties between the life and natural sciences. MOST supplies support to special-purpose scientific centers providing all on-site members of the scientific community with access to state-of-the-art technologies and facilities. In a further move, MOST dispenses funding going to research and development centers located in areas with weakly-performing economies. The Ministry is also responsible for the development and implementation of international-level and intergovernmental scientific relationships, of bilateral arrangements, and of the participation in such international scientific organization as the OECD, EMBL and CERN.

**Ministry of Industry, Trade and Labor**

The large budget possessed by the Ministry of Industry, Trade and Labor (MOITAL) makes it a big player in the field of state-supported research. The prime objects of MOITAL’s funding are manufacturers, along with the working relationships between them and institutions of higher education set up to conduct research solving problems.

As is the case with many ministries in Israel, MOITAL has an Office of the Chief Scientist (OCS). This consulting body dispenses financial assistance. The international-level R&D program undertaken by MOITAL-OCS is supported and implemented by MATIMOP (Israeli Industry Center for R&D). Comprised in this are such European, bilateral and multilateral programs as EUREKA, Eurostars, Galileo, the 7th Framework Research Program (FP7), and the Framework Program for Competitiveness and Innovation (CIP).

The MOITAL-OCS had a budget of some $US270 million in 2011 and 2012. Of that, a considerable part stemmed from repayments from companies whose successes ensued from support provided by the R&D fund. The moneys are to go to the supporting of new projects. An allocation of funds among special-purpose programs is not undertaken. Prime among the sectors supported are communication technologies, electronics and software. These are followed by medical equipment, pharmaceuticals, biotechnologies and chemicals.

In addition to the R&D fund, the OCS maintains other programs of support. These are designed to foster the innovativeness of companies, to intensify the working relationships between them and research facilities, and to ease the transferring of technologies. The following programs do not require the repaying from earnings of grants:

**Generic R&D program**

This program encourages companies making large-scale R&D investments to allocate a large portion of these funds to transdisciplinary, long-term R&D measures. Grants amount to up to 50% of the approved budget.
MAGNET program

This supports the formation of consortia comprised of manufacturers and of academic facilities and dedicated to the joint pursuing of broad-spanning and pre-marketable technologies. The program is comparable to those undertaking consortium research on the German and European levels. Grants amount to up to 66% of the approved budget for manufacturers, and up to 80% for academic facilities for 3–5 years. In the pre-marketing area, the program provides support to projects whose consortia are comprised of at least two companies and one research facility. The average amount of funding per consortium comes to $US5–6 million.

MAGNETON program

This program is a small-sized version of the MAGNET program, of which it actually forms part. MAGNETON fosters working relationships between a company and a program of academic research, and thus the transferring of technologies from the scientific to the business communities. Grants amount to up to 66% of the approved budget (max. $US800,000), for up to 24 months. This program has progressively gained in importance over the past few years.

NOFAR

NOFAR is also part of the MAGNET program. It supports the transfer of technologies in the areas of biotechnologies and nanotechnologies. Grants amount to up to 90% of the approved budget (max. $US100,000), for 12–15 months.

Technological incubators

Technological incubators (TIs) play an important role in the facilitating of technology transfers. These non-profit organizations provide support to companies during their founding phase and in the development of their innovative technologies. The TIs also facilitate the starting up of new business projects that could attract private investors. During the initial two years of the project, the incubator, which holds a 20% stake in this venture, handles the entire administration of the company’s affairs and, moreover, the inculcation of its personnel in the basics of business administration.

The program enables private investors to become owners of the incubator and to invest in the companies coming into being in it at an early stage. Grants amount to up to 85% of the approved expenditures.

### Spending on Research and Development (R&D) in Israel

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<th>Israel</th>
<th>Year</th>
<th>OECD overall</th>
<th>Year</th>
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<tbody>
<tr>
<td>National R&amp;D expenditure</td>
<td>US$8,794.4 m</td>
<td>2009</td>
<td>US$964,414.1 m</td>
<td>2008</td>
</tr>
<tr>
<td>Percentage of GDP spent on R&amp;D</td>
<td>4.27 %</td>
<td>2009</td>
<td>2.34 %</td>
<td>2008</td>
</tr>
<tr>
<td>Year-on-year growth in R&amp;D spending</td>
<td>-6.71 %</td>
<td>2009</td>
<td>6.2 %</td>
<td>2008</td>
</tr>
<tr>
<td>Public sector R&amp;D expenditures – share of GDP</td>
<td>0.68 %</td>
<td>2007</td>
<td>0.65 %</td>
<td>2008</td>
</tr>
<tr>
<td>Public R&amp;D expenditure</td>
<td>14.2 %</td>
<td>2007</td>
<td>27.7 %</td>
<td>2008</td>
</tr>
<tr>
<td>Private R&amp;D expenditure</td>
<td>79.5 %</td>
<td>2007</td>
<td>64.5 %</td>
<td>2008</td>
</tr>
<tr>
<td>R&amp;D expenditure from foreign sources</td>
<td>2.8 %</td>
<td>2007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R&amp;D expenditures for universities</td>
<td>US$1,117.8 m</td>
<td>2009</td>
<td>US$164,362.0 m</td>
<td>2008</td>
</tr>
<tr>
<td>Triadic patent families</td>
<td>389</td>
<td>2008</td>
<td>46,691</td>
<td>2008</td>
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<tr>
<td>Share of total triad patents</td>
<td>0.81 %</td>
<td>2008</td>
<td>97.38 %</td>
<td>2008</td>
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Expenditures for research and development (R&D) in Israel. Source: OECD Main Science and Technology Indicators, 2010/2
Twenty-two of 24 incubator projects managed in the years 2002-2008 to secure private investment. In 2010, OCS approved 13 new incubator projects. These had a total volume of €5 million. Several of them are in the area of medical technologies. The TNUFA programme also promotes the transferring of technologies. The programme’s support goes to the early phases of projects being undertaken by individuals and by start-ups. The support amounts to up to 85% of the approved budget (at most: $US 50,000). It also comprises feasibility studies and preparations for patent applications.

Ministry of Education

The Ministry of Education is responsible for all phases of education, starting with preschool and extending to university degree programs. The minister of education chairs the Council for Higher Education (CHE) and names its general director.

Council of Higher Education

Its Act of Constitution of 1958 makes the CHE the main body of management and budgeting for Israeli’s institutions of higher education, for the Weizmann Institute and for the majority of the colleges. The CHE’s main responsibilities are the accrediting of new institutions of higher education, the authorization of new faculties and degree programs, the granting of the right to bestow academic degrees, the allocation of budgetary funds to institutions of higher education, and the carrying out of reforms of the institutions of higher education. The minister of education chairs the CHE.

Instruments of research support

The Israeli Government’s work in R&D is supported by the National Council for Research and Development (NCRD), which was created in 2004 by the Knesset, and which is comprised of 15 members. These are from the scientific, technological and industrial sectors. The NCRD serves as the government’s consultants on national research and development policies, with this including the dispensing of the budget.

The prime responsibility of the Israel Academy of Sciences and Humanities is the cultivation of relationships with international non-governmental organizations (NGOs) and the conclusion of bilateral cooperation agreements. The IASH’s role as a consulting body enables it to exert influence upon Israel’s research policies and upon its decentralized research community. An instrument for doing such is its nominating researchers for the Israel Prize, which is conferred by the Ministry of Education for special achievements in a variety of fields.

Spun off in 1972 from the Academy, the Israel Science Foundation (ISF) is becoming an increasingly important source of financing for the basic research conducted by the country’s universities. Its annual budget started out as a modest $US300,000 a year. It has by now grown to nearly $US59 million. It is to further increase to $US80 million over the next few years. Some $US 1.5 million of the ISF’s budget stems from private donors and foundations. The main responsibilities of the ISF consist of funding projects, granting research scholarships, managing the new FIRST program, and providing financing for infrastructural measures and for large-sized devices.
Israel’s institutions of higher education and their research facilities

Some 142,600 students are enrolled in Israel’s six universities and in the Weizmann Institute. The latter exclusively offers further qualifications for scientists holding degrees.

Also in Israel is a remote access university, the Open University, with an enrollment of 36,700 students as well as 31 colleges with some 63,200 students. A number of these institutions carry out an increasing amount of research. Also taking advantage of these offerings are a further 10,000 students outside Israel – of them, 1,000 in Germany – and those attending non-Israeli universities – with these mostly being the offshoots of British and American ones – in Israel.

The colleges are playing an increasingly important role in professional education. Their total enrollment has more than doubled over the past six years, with this primarily occurring in engineering. The colleges have a focus similar to that of Germany’s institutions of higher education. They provide students with a wide-scope access to higher education aligned to meet the needs of future professions. Israel’s universities place a high priority on fostering a pipeline of young scientists.

The social sciences and humanities account for more than 60% of the students’ majors, with the natural sciences and engineering responsible for 30%. A further 6% is attributable to medicine.

Women account for some 55% of the matriculating students. Military service is long. This fact explains the relatively – by international standards – advanced age of 20–22 of enrollment in higher education. Tuition at Israeli universities averages $US 2,500 per student per year. 40% of the country’s students do, however, receive scholarships and other forms of support from a range of public sector and special-purpose programs.

Bar-Ilan University (BIU)

Established in 1955, Bar-Ilan University (BIU) is today the largest and fastest growing university in Israel, with a student population of approximately 40,000 at its main campus in Ramat Gan and at the four regional colleges operating under its auspices.

In recent years, BIU strengthened its research infrastructure. To help it achieve this goal, BIU supports 76 research centers and hosts 66 academic chairs. Among BIU’s research centers are four flagship facilities:

- The Institute of Nanotechnology and Advanced Materials
- The Gonda Multidisciplinary Brain Research Center
- The Biophysical Interdisciplinary Schottenstein Center for the Research and Technology of the Cellome
- The Bar-Ilan Institute of Superconductivity

In addition, BIU attracts top quality scientists worldwide by

- granting Presidential and other scholarships to the most talented graduate students and researchers
- forging global research partnerships with 59 international universities and research centers, including 13 with institutions in Germany
The Israeli government has awarded the establishment of the country’s fifth school of medicine to BIU. The new faculty, which will open for the 2011–2012 academic year, will be located in the historic Galilee city of Safed. The BIU Faculty of Medicine will answer the underdeveloped North’s need for a critical mass of top-level medical care and research. The Faculty will also serve as a major source of development for the region’s economy and quality of life. It will boost the level of community medicine in the region to the highest standards of health access and delivery.

BIU has placed a major emphasis on substantially increasing its research revenues. These have risen from $US15.6 million to $US20.1 million during the last two fiscal years. During this period, BIU also won four EU FP7 ERC grants totaling more than €6 million. BIU has also developed unique interdisciplinary study programs and has intensified research and instruction in such cutting-edge fields of R&D as renewable energy, information security, biotechnologies, nanotechnologies, and brain research.

Working relationships with German institutions of higher education

Germany-BIU undertakings form an essential component of BIU’s research portfolio. The trend impelling academic research is towards regional and global partnerships. Taking part in this, BIU and its German colleagues participate in innovative and creative projects. These are funded by some of the most prestigious sponsors in the research community. BIU has received funding through a variety of programs. These include Minerva, DIP, GIF, MPG, BMBF-MOST, and the DFG. Several of the EU’s most successful networks were spawned by collaborative projects between BIU and German researchers.
These partnerships have helped propel BIU to the forefront of the scientific, humanistic and professional arenas. This achievement, in turn, has enabled its faculties to provide its students, including those from the Federal Republic of Germany, with a superior education, and to offer scholars unique research collaboration opportunities. The wide range of joint research programs has also enabled Bar-Ilan to attract first-rate academics.

German-BIU scientific and technology projects, academic exchange programs, and research networks and partnerships form an essential and growing component of BIU’s research portfolio. To set forth and strengthen these ties, BIU will dedicate its human, financial, and technological resources to recruiting post-doctoral students, to expanding its academic exchange programs, and to increasing collaboration in both basic and commercial research ventures.

Prof. Harold Basch, Vice-President for R&D, Bar-Ilan University
Ben-Gurion University of the Negev (BGU)

Ben-Gurion University of the Negev was established in 1969 to bring about the development of the Negev, the desert comprising more than 60% of the country. The founding of the University was inspired by the vision of Israel’s first prime minister, David Ben-Gurion, who believed that the future of the country lay in this region.

Today, Ben-Gurion University is a major center for teaching and research. These are conducted on its campuses in Beer-Sheva, including the Marcus Family Campus, as well as in Eilat and in Sede Boqer, where Ben-Gurion spent his final years and where he is buried. More than 19,000 students are enrolled in the University’s Faculties of Engineering Sciences, Health Sciences, Natural Sciences, Humanities and Social Sciences, the Guilford Glazer Faculty of Business and Management and the Kreitman School of Advanced Graduate Studies. The University also includes such major research institutes as the National Institute for Biotechnology in the Negev, the Jacob Blaustein Institutes for Desert Research (which include the Albert Katz International School for Desert Studies), and the Ben-Gurion Research Institute for the Study of Israel and Zionism. New interdisciplinary degree programs are redefining the boundaries between the faculties and attracting outstanding students. The University’s world-famous Joyce and Irving Goldman Medical School has become a model for community-oriented and global medicine. The University’s social work and education degree programs supply Beer-Sheva and its region with the majority of its social services personnel.

In keeping with its mandate, Ben-Gurion University plays a key role in promoting industry, agriculture and education in the Negev. University-sponsored community colleges and pre-academic and continuing education programs make learning accessible to ever-greater numbers of Negev residents, while a myriad of community action...
programs involving over half of the student body benefit the various communities in the region.

Ben-Gurion University is part of the global academic community. Its researchers share on the international level their expertise in such fields as IT, nanotechnologies, medicine, arid zone agriculture, solar energy, water resource management and biotechnologies. The University anticipates the arising and exploiting of exciting challenges in innovative fields of research and hopes to bring new opportunities to Beer-Sheva and the Negev while continuing its pursuit of academic excellence and exchange.

Ben-Gurion University of the Negev is proud of its research relationships with German research institutes and companies. Not only do we have many bilateral cooperation programs – in computer science, cancer research, regional cooperation, water, biotech and bioengineering to name but a few – but we also frequently look to each other first when seeking partners for FP7 collaborations. We look forward to continuing and expanding this fruitful cooperation.

Prof. Moti Herskowitz, Vice President for R&D, Ben-Gurion University

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**Ben-Gurion University of the Negev**

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<thead>
<tr>
<th>location</th>
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<td>staff members</td>
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<td>6</td>
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<td></td>
<td>Faculty of Humanities and Social Sciences, Faculty for Health Sciences, Faculty of Engineering, Faculty for Natural Sciences, Gilford Glazer Faculty of Business and Management, The Jacob Blaustein Institutes for Desert Research</td>
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<tr>
<td>Website</td>
<td><a href="http://web.bgu.ac.il">http://web.bgu.ac.il</a></td>
</tr>
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In 1882, Hermann Zvi Shapira, a Heidelberg-based professor of mathematics, published an essay outlining plans for the establishment of a Jewish university in Palestine. In subsequent years, this idea was taken up by the same intellectuals who were striving to create a Jewish state. Their vision foresaw the university’s serving as the intellectual, cultural and scientific node of the Jewish people and society that would arise once more in the land of their ancestors. This dream came true in 1918 with the laying of the cornerstone of the Hebrew University on Mount Scopus in Jerusalem. The first board of governors included such renowned figures as Martin Buber, Sigmund Freud, Judah Magnes, Albert Einstein and Chaim Weizmann.

Chaim Weizmann, who went on to become Israel’s first president, believed that the Hebrew University should also serve as the bridge of understanding to be built between the Jews and the Arabs living in Palestine and in the surrounding region. With the rise of the Nazi regime in Germany, the Hebrew University became a prime refuge for victims fleeing persecution and discrimination at universities in Germany and elsewhere in Europe.

In its early years, academic life at this “temple of Science” (as the Zionist leader Menahem Ussishkin described the university on the occasion of Albert Einstein’s inaugural lecture in 1923) revolved mainly around two fields: the natural sciences and Jewish studies. In addition to researching the flora and fauna of the region, studying the country’s geology and geography, and fighting the diseases that were prevalent in the area (such as malaria), the Hebrew University also contributed to the revival of Hebrew by insisting that it be the language of instruction. This led to Hebrew’s being adapted to meet the requirements of scientific work.

Today, the seven faculties of the Hebrew University are comprised of 12 institutes that focus on teaching and of some 100 institutes dedicated to research. The Hebrew University is ranked among the 100 best universities in the world and HU researchers are at the forefront of a wide range of fields in international science. These fields include biotechnologies, computer sciences, astrophysics, cancer research, microbiology and solar energy. The Hebrew University is home to a number of centers of excellence. They cover such topics as German history, neural computation, cognitive sciences, bioinformatics, nanotechnology and environmental sciences.

The university’s faculties of humanities and social sciences focus on studying humanity's various cultures, societies and religions. Jewish studies are a central element of academic pursuit at HU. It also has, however, important centers of Islamic and Christian studies, and of the civilizations of the Middle and Far East.

The Hebrew University currently has four campuses, three of which are located in Jerusalem and one in Rehovot. There are more than 1,000 faculty members. Approximately 24,000 students are enrolled at the HU. Their ranks are comprised of 12,000 undergraduates, 7,200 graduates, 2,800 doctoral students and 950 students of the Rothberg School for Overseas Students and of other programs.

The HU has always conducted both applied and basic research. Nearly 30% of all civilian scientific research in Israel is performed at the Hebrew University. About 4,400 research projects are currently underway at the university, and 1,500 new projects are launched each year. 16% of all the research conducted at the university finds application in the high-tech sector. The university’s research budget amounted to $US106 million in 2006/07, approxima-
The Hebrew University of Jerusalem

The Hebrew University of Jerusalem

<table>
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<tr>
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<tr>
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<td>Faculties</td>
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<tr>
<td></td>
<td>humanities, social sciences, natural sciences, agriculture, medicine, dentistry, jurisprudence</td>
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<tr>
<td>Website</td>
<td><a href="http://www.huji.ac.il">http://www.huji.ac.il</a></td>
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</table>

Israel’s Institutions of Higher Education and the Research Facilities

The Hebrew University has more than fulfilled its original vision of becoming a focus of academic excellence in the region. It is one of the major participants in internationally funded research projects involving neighboring Arab states and the Palestinians, most significantly in the areas of conflict research, agriculture, health and the environmental sciences. Nine of these projects currently receive funding from the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation). German scientists are also involved in the projects. The Hebrew University cultivates a densely woven network of collaborative activities with Germany. It also has the largest number of Minerva Centers in Israel.

During her second visit to Israel, which took place in April 2007, Federal Chancellor Dr. Angela Merkel received an honorary doctorate from the Hebrew University.

Seven Nobel Prizes were conferred in the last decade upon Hebrew University faculty members and/or alumni. 10 ERC Advanced Grants and 18 ERC Starting Grants were awarded to Hebrew University faculty members in the previous 3 granting rounds. This fact establishes the Hebrew University as the second best university in Europe (tied with Oxford) as far as ERC starting grants are concerned. With over four decades of experience in commercializing the scientific discoveries emanating from the Hebrew University, Yissum, its technology transfer company, ranks among the top 12 technology transfer companies in the world in revenues.

The Hebrew University, founded in 1925 and thus the first research university in Israel, acknowledges the contribution of Jewish scientists from Germany to the establishment and development of academic excellence in Israel. Based on these strong historical ties, Israel in general and the Hebrew University in particular are now seeking to align our activities with those of Germany, which is one of the world’s leaders in science and research. We continuously strive to intensify and increase our already strong and numerous working relationships with Germany’s research community. These make use of our scientific excellence and cover a wide spectrum of academic fields, ranging from the humanities to the natural sciences and life sciences.

Prof. Isaiah T. Arkin, Vice President for Research and Development, Hebrew University of Jerusalem
The Technion, Israel’s oldest university, was modeled upon Germany’s technical universities. In 1909, the Hilfsverein Deutscher Juden, a Jewish welfare association in Germany, took the initiative of founding in Berlin the “Jüdisches Institut für technische Erziehung in Palästina” (Jewish Institute for Technical Education in Palestine). The institute’s objective was to pave the way for the establishment of a technical university in Palestine.

The cornerstone of the first building in Israel was laid in 1912. The question of which language should be used for instruction – Hebrew, German or English – developed into a protracted dispute. Hebrew won out in 1914, the year in which World War I broke out. Due to the war, however, the Technion could not be commissioned until 1924.

After overcoming some initial difficulties, the Technion began developing in the 1930s. This process was impelled by the influx of German immigrants, many of them university teachers and researchers. A number of them established fields of study at the Technion.

Today, the Technion has 18 academic units. They operate 40 research centers and institutes. These in turn devote themselves to a wide variety of technical, scientific and medical fields. The Technion’s some 550 faculty members teach some 13,000 students. Having trained more than 80,000 engineers, scientists, doctors, and architects, the Technion can well claim to have made a significant contribution to Israel’s rise to being a high-tech nation. In the field of engineering, the Technion continues to be the country’s foremost training and research center. Its research budget in this area amounts to more than $US60 million per year from external sources, plus an additional $US50 million more from donations. The Technion was also the first university in Israel to have a Nobel Prize conferred upon its researchers.

The Technion maintained close contacts with manufacturers even before the State of Israel was founded. These ties are thus more longstanding than those of any other university in Israel. The Technion also has a network of subsidiaries. These have played an important role in the founding of many high-tech companies. The Technion is particularly active in the area of contract research. Its clients are companies from all over the world, including Germany.

The university’s initial contacts with Germany were established under the auspices of the German state of Lower Saxony and of the Volkswagen Foundation. The Technion and Lower Saxony’s Ministry of Science and the Arts agreed in 1983 to launch a joint research program to be primarily financed by funds earmar-
Funding from this program has supported the more than 106 joint projects that have already been carried out by scientists from the Technion and from research institutions in Lower Saxony.

Researchers from the Technion and their German colleagues are represented in all German-Israeli R&D funding programs and in the EU’s Framework Research Programs.

Excellent working relationships are maintained between the Technion and such German institutions of higher education as the RWTH Aachen University, the Technical University of Berlin, the Ludwig Maximilians University in Munich, the Karlsruhe Institute of Technology, the Ruprecht Karls University of Heidelberg, and the University of Stuttgart.

Such close ties also exist between the Technion and such research institutes as those of the Max Planck and Fraunhofer societies, the Research Center Jülich, and the German Aerospace Center (DLR).

The Minerva Research Centers, which are financed by the Max Planck Society’s Minerva Foundation, support cooperation between German and Israeli scientists in various fields of research.

In a number of these centers, the Technion conducts research under its sole management; other centers are run in cooperation with other Israeli universities.

Technion scientists also work together with such German companies as Bayer, Siemens, Bosch, Henkel, SKT (Schunk Kohlenstofftechnik GmbH), Carl Zeiss, STEAG and Vodafone.

The working relationship between the Technion and German science and technology institutes is extremely important and should be strengthened and extended. Germany is a country possessing outstanding scientific and technological capabilities and achievements, and the Technion, as the leading science and engineering school in Israel, aims to cooperate with the best institutions in the world. This scientific interaction also serves as a bridge between the two nations.

Prof. Oded Shmueli, Vice President for R&D, Technion Haifa
Tel Aviv University (TAU)

Located in the center of cultural, business and financial life in Israel, Tel Aviv University (TAU) is today the largest institution of higher education and research in the country. The University is comprised of 9 faculties, 95 departments, 27 areas of study and more than 130 research institutes. TAU came into being in 1956 through the merger of three small-sized institutions of education. In 1963, it was set up as an autonomous institution. A year later, it grouped its institutes on the Ramat Aviv campus, which is located in northern Tel Aviv.

TAU has an enrollment of 29,000. These students are provided with a very wide spectrum of areas of study by the faculties of engineering, mathematics and natural sciences, biosciences, medicine, humanities, jurisprudence, social sciences, fine arts and management. Especially supported is the introduction of innovative and interdisciplinary programs in such cutting-edge sectors as the nanosciences, biophysics, bioinformatics, stem cell research and regenerative energy. Many of TAU’s 1,100 professors are internationally-renowned scientists who have come up with significant research findings in their areas of expertise.

Among TAU’s large number of international-level activities is the annual conferring of the Dan David Prize, one of the most important honors in the world. TAU maintains close relationships with Jewish communities around the world. The university also offers programs of study for teachers and students in the USA, Canada and Europe. The University’s extensive outreach to leading facilities of research and education manifests itself in the number of its cooperation agreements – more than 150. A number of these agreements are with such institutions of higher education in Germany as the Ludwig-Maximilians-University in Munich, the Johann Wolfgang Goethe University in Frankfurt, the University of Konstanz and the GFZ German Research Center for the Geosciences.

In addition to project funding from Germany’s Federal Ministry of Education and Research’s programs, TAU has received over the past years various kinds of other financial support from Germany. This has stemmed from the Society of the Friends of the university, foundations, private donors and other sources. Founded in 1971, the Minerva Institute for German History at TAU has been receiving funding since 1980 – via the Foundation Fund of the Munich-based Minerva Foundation – from Germany’s Federal Ministry of Education and Research. Other grants from Germany support the faculties of jurisprudence.

Tel Aviv University (TAU) uses grants and scholarships to foster working relationships between Germany and Israel in the areas of research and education. TAU also participates in a large number of German-Israeli programs, with these including Minerva, GIF, DIP, BMBF-MOST and BIO-DISC. TAU has a great store of expertise in working with manufacturers operating in a large variety of areas. These include communication technologies, bioinformatics and electronics. The university employs its local and international contacts to the stepping up of its working relationships with German business and technology partners and with the country’s institutions of higher education.

Prof. Hagit Messer Yaron, Vice-President of Research and Development, Tel Aviv University
and visual arts; foster the peaceful coexistence of Jews and Arabs; fund scholarships and scientific work in a large number of areas of study, ranging from biotechnologies to peace research; promote the integration of immigrants; and support a large number of other TAU facilities. Cultural sciences and relationships have been advanced by the founding of the Marcel Reich-Ranicki Chair of German Literature at TAU and through the visits by Christoph von Dohnanyi and Helmuth Rilling – two of Germany’s leading conductors – to TAU’s Academy of Music.
University of Haifa

The University of Haifa was established in 1963 to meet the special needs of the Haifa area and of the north of Israel. Initially administered under the auspices of the Hebrew University, the University of Haifa gained full academic autonomy in 1973. Today, it is home to more than 17,000 students. Over 750 scholars and scientists make up the academic staff of the university’s six faculties: Humanities; Social Sciences and Mathematics; Education; Law; Social Welfare and Health Studies; and Science and Science Education. There is also a thriving Graduate School of Business.

Among the most prominent of the university’s 60 multifaceted research centers are the Institute of Evolution, the Institute for the Study of Affective Neuroscience, the Max Wertheimer Center for Cognitive Processes and Human Performance, and the Research Institute for Alternatives in Education. The IBM Haifa Science and Technology Center, which is located on the university’s campus, is dedicated to the field of the user-friendly information society (IST).

Israel, of course, is a small country, but it boasts a vibrant academic community. International ties are at the heart of all successful academic research. The resources made available through the years by the German government and by other funding agencies have facilitated numerous state-of-the-art research projects, have helped create and consolidate various top-ranking research institutes and have encouraged many fruitful partnerships between German and Israeli scientists as well as with scholars from the Palestinian Authority and from other Arab countries.

As Vice President and Dean of Research of the University of Haifa, I firmly believe that science and scientists should create not only scientific knowledge, but should also help promote understanding and build bridges promoting peace among the peoples of the Middle East. German research ties also provide significant support for this mission.

Prof. Majid Al-Haj, Vice President and Dean of R&D, University of Haifa
What sets the University of Haifa apart from its fellow universities in Israel is the large numbers of students from Israeli Palestinian and immigrant families in its student body.

The University of Haifa’s research and teaching activities have been supported by German initiatives for a long time. In 1974, the Friedrich Ebert Foundation in Bonn sponsored the creation of the University’s Jewish-Arab Center and its Gustav Heinemann Institute for Middle Eastern Studies, both of which have been receiving funding from the Land of North Rhine-Westphalia since 1991. The latter also helped establish the Bertha von Suttner Special Research Program for Conflict Resolution in the Middle East.

The ZEIT Foundation finances the Center for Multiculturalism and Educational Research. The Foundation founded in 2000 the Bucerius Institute for Research of Contemporary German History and Society. The central driving force behind the ZEIT Foundation’s activities has been Prof. Manfred Lahnstein, the former German Minister of Finance and former president of the German-Israel Society (DIG). In April 2008, the Bucerius Center established the “Manfred Lahnstein Fellowships”, which are awarded every year to European doctorate students and which enable them to study at the Center.

In 2007, the German Academic Exchange Service (DAAD), acting on behalf of the Federal Government, chose the University of Haifa to be the site for one of the two new Centers for German and European Studies, whose mandate is “to provide the young elite in Israel with knowledge about Germany”. In concrete terms, the Center has three pillars of activity: teaching, research, and public outreach.
Weizmann Institute of Science in Rehovot (WIS)

The Weizmann Institute of Science is one of the leading basic research institutions worldwide in all areas of the natural and exact sciences. The Institute’s 18 departments are organized into five faculties: Mathematics and Computer Science, Physics, Chemistry, Biochemistry and Biology. There is also a Science Teaching department, as well as the Feinberg Graduate School, the Institute’s educational branch, which grants M.Sc. and Ph.D. degrees. The Davidson Institute of Science Education operates and coordinates the Institute's educational activities, including Perach, a mentoring program; the Clore Garden of Science (an open-air museum of sciences); and numerous after-school activities, and student and teacher enrichment programs.

The presence of scientists from a variety of fields on the Institute’s campus provides fertile grounds for interdisciplinary research, giving rise to fascinating encounters between diverse scientific fields that rarely converge elsewhere. Some 1,200 research projects, each at the forefront of international science, are underway at the Institute at any given time.

The Weizmann Institute emerged from the small-sized Daniel Sieff Research Institute, which was founded in 1934 by the UK’s Israel and Rebecca Sieff in memory of their son. The driving force behind its establishment was the Institute’s first President, Dr. Chaim Weizmann, a noted chemist who headed the Zionist movement for many years and who went on to become the first President of Israel. The Institute was renamed the Weizmann Institute of Science in honor of Dr. Weizmann’s 75th birthday in 1949, with the agreement of the Sieff family.

In subsequent years, the Institute was substantially expanded. Its present-day campus contains more than 100 buildings and more than 300 acres (1.2 km). The Institute employs approximately 2,500 people, including 250 principal investigators heading their own research groups; 850 engineers,
Israel’s Institutions of Higher Education and Their Research Facilities

**Weizmann Institute of Science in Rehovot (WIS)**

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The Weizmann Institute has the longest standing contacts with German researchers of all Israeli research centers. The Weizmann Institute and German scientists carry out more than 100 joint projects every year, working on a bilateral basis or in EU initiatives. The Institute maintains particularly close ties with the Max Planck Society. These led to the establishment of the first contacts between German and Israeli scientists in 1959. The BMBF has provided funding for the Weizmann Institute since 1964 via Minerva Stiftung GmbH, a subsidiary of the Max Planck Society.

The Weizmann Institute of Science maintains close ties with many German institutions of higher learning and research, and in particular with the Max Planck Society, which established the first contacts between German and Israeli scientists in 1959. Today, Weizmann scientists are engaged in over 100 joint research projects with German colleagues. These projects are in all areas of the exact and natural sciences, and are funded by the Minerva Foundation, DIP, GIF and EU research programs. As we celebrated the German-Israel Year of Science and Technology and mark more than 50 years of fruitful scientific cooperation, we look forward to consolidating and strengthening our mutual scientific ties.

Prof. Haim Garty, Vice President
The jointly compiled findings of the German-Israeli research eloquently document the potential contained in this working relationship. These brief case studies of the two countries’ projects are primarily in the fields of research into security, medicine, oceanography and environmental sciences, and as well as into physics, water management and bioethics.

Research into civil security

The number of sources and objects of threats to our civil security keep on rising, as do their potential magnitude. Increasing even faster are, accordingly, our need to prevent, detect and defuse these threats. One driver of solutions in the area of security research is the close working relationship between Israel and Germany. The breadth and diversity of this relationship are detailed by the projects pursued by these partners.

Recent incidents have repeatedly brought to the public’s attention the fact that the detection of hazardous substances in cargo is of ever increasing concern. However, the huge amount of such shipments makes checking every nook and cranny prohibitively expensive in terms of time and money. To meet this challenge, the ACCIS project ("Automatic Cargo Container Inspection System") is devoting itself to coming up with new and innovative solutions for cargo inspection. Being conducted from July 2010 to June 2013, the project is being pursued by a research team comprised of five German and three Israeli partners. The goal is the setting up of a demonstrator capable of detecting explosives and radioactive materials in such small and medium-sized freight receptacles as airfreight containers. The method is based on an innovative screening procedure combining high-resolution neutron resonance imaging and gamma radiography. Able to identify a large range of dangerous materials, this technique facilitates the more rapid, reliable and partially automated detection of contraband.

After a major earthquake, tidal wave, hurricane or another form of natural disaster strikes – something that is seemingly happening more and more often these days and with catastrophic ramifications upon property and human life – the most immediate and urgent jobs are finding and rescuing the persons buried under the resultant rubble. Often handicapping this race with the clock is a crippling lack of information: on whom you are looking for, on where they are, who has already been found and requires rescuing, and how best to get to them. Alleviating this lack is the objective of I-LOV – "Intelligent safeguarding localization system for the rescuing of people trapped or buried under rubble". This project is being conducted from June 2008 to November 2011 by 15 German and three Israeli partners. I-LOV’s concept is to create an innovative localization system improving the finding of the buried and the injured.

The transport of patients with highly infectious diseases demands special knowledge. The most highly leveraged threats to the health of large segments of the population ensue from the combination of infections and modern means of transport. It only takes a single, infected air passenger or terrorist-borne vial of viruses to create a bio-emergency endangering an entire city, nation or even continent. The key to defeating such epidemics is preparedness on the part of hospitals, communities and countries. They have to be ready to take the actions isolating and effectively treating...
the highly-infectious patients and containing the incipient sickness. Auditing and improving these states of readiness is the goal of the BEPE – Internet-based tool for the evaluation of hospitals’ level of preparedness for biological emergencies project being undertaken from April 2010 to March 2013 by a consortium comprised of four German and two Israeli partners. The project will lead to the creation of a comprehensive-range and highly-reliable Internet-based tool capable of conducting such audits of hospitals and of their personnel’s readiness to deal with a bio-emergency, including ones caused by terrorists, and of thus revealing areas of improvement. The project teams up Germany’s experience in combating such explosively-infectious diseases as SARS and Lassa fever and Israel’s expertise in managing large crowds of people.

Mobility of people and goods is one of the key drivers of globalization. Bridges and tunnels are important components of the transport infrastructure enabling this mobility. This importance and their high concentrations of traffic make these structures especially prone to being the venues of disturbances of such. Due to the structures’ confined quarters, accidents and actions undertaken for criminal and terrorism purposes can have serious consequences for the traffic and for bridges and tunnels. Maintaining mobility requires therefore taking preventive measures enhancing the security and protection of tunnels. A project headed by Germany’s Federal Highways Agency (BASt) is developing a security management system comprised of innovative sensors, technical equipment already installed in tunnels and a newly-created software capable of the real-time ascertainment of conditions in a tunnel. These findings are then visually reported in a control center. This system is to provide the tunnel’s operators with a greater speed and efficacy of response to disturbances. Creating it is the objective of RETISS – Real-time Security Management System for Infrastructure on German and Israeli roads, which is being staged from March 2010 – February 2013 by four German and three Israeli partners.

Germany’s potable water is renowned for its purity. This purity is maintained through continuous and repeated testing. Today’s testing systems are capable of reporting within short periods of time contamination by a wide variety of items, with these including fertilizers washing down with deluges of rainfall. An innovative system is to also have the power to rapidly detect and warn operators of the presence of such hazardous substances as DDT and other chlorinated hydrocarbons. Being staged from May 2010 to April 2013 by six German and one Israeli partner, IRLSENS – Infrared laser-based fiber optic sensor system for drinking water monitoring promises to come up with such a system.

Today’s generation of sensors is much smaller than its predecessors. Not only that, quite a number of these advanced sensors have unprecedented capabilities of detection (of hazardous materials and of changes in temperature and composition). The ChipSenSiTek fiber optic microsensors for the detection of explosive materials under real-time conditions project, which was carried out from 2007 – 2009 by six German and two Israeli research partners, went one step farther. It applied a special coating to the sensors. This gave them the capacity to detect explosives on a real-time basis and with a high degree of discrimination. These sensors are destined to be put to work in secure and isolated facilities (such as an airlock) in which persons undergo security controls.

A personnel airlock in which the new sensors could be integrated
German-Israeli cooperation: case studies

Early recognition of electromagnetic disturbances increases the security of the travelers.

Electromagnetic disturbances pose a great threat to airports and other transport infrastructure, as the disturbances can cause the malfunctioning of their entire IT and communication systems, as these disturbances can give rise in the worst case to catastrophic accidents, and as the disturbances can be easily generated. Add in the fact that the sources of these disturbances are hard to localize and trace, and you can understand why this threat is now being systematically dealt with. Being carried out from April 2010 – March 2013 by six German and two Israeli research partners, EMSIN Electromagnetic protection of transport infrastructures is designed to create strategies enabling operators to improve their protective shield against incidents of such electromagnetic disturbances. Once formulated, the concept is to be developed for marketing and to be produced by a manufacturer participating in the project.

Being undertaken from May 2010 – July 2012 by seven German and three Israeli research partners, LiveDetect3D Detection of hidden threats through real-time 3D imaging is developing a system using a terahertz imaging system and an optic 3D camera to conduct the safe-distance scanning of persons. This will reveal any security threat emanating from hidden and dangerous objects, and will do such without intruding upon the scannees’ privacy by not producing detailed depictions of their bodies. LiveDetect could thus well form the basis of forthcoming access control systems.

Do the German and Israeli societies have the resiliency requisite to withstand and overcome crises and their immediate and long-term effects? This question was addressed by the ESR System trust and crisis management: an interactive expert exchange system for strengthening societal resilience project, which was carried out from March 2010 – February 2011, and which first investigated the concepts informing resiliency, and which then came up with the tools to investigate and evaluate it in the two societies.

Medical research

Israel and Germany have long been leading centers of the neurosciences. As such, they have been at the forefront of solving one of this field’s most important and intriguing challenges: finding a way to provide the paralyzed, amputees, Parkinson patients...
and other handicapped persons with control over their limbs and prostheses, and, by doing so, to free them to lead more mobile and self-reliant lives. Beneficiaries of this liberation will not only be the patients themselves but society in general, which will gain personnel and reduce a source of expenditure.

One of the most promising approaches was yielded by METACOMP – Models and Experiments towards Adaptive Control of Motor Prostheses. Now concluded, this DIP project cooperation was undertaken by Dr. Eilon Vaadia of the Hebrew University of Jerusalem and by Dr. Ad Aertsen of the University of Freiburg.

The approach’s outcome could well be ‘intelligent’ prostheses – in that they are robustly and directly linked via a stably-functioning interface to the brain, and in that they are thus capable of responding to changes in conditions or to patient’s wishes. The way to such prostheses is based upon a formulation of models and mechanisms capable of the real-time tracking of neuronal activities in the motor areas of the cortex. After having been formulated, these models are to be used to investigate how the movement of the arm is depicted on and learned at the neuronal level. Once this has been accomplished, the finalized models are to form the core of an adaptive mechanism capable of transforming neuronal activity into the movements desired by the patient.

Everything in life has two sides. Much to our surprise, it turns out that our immune system is not an exception to this rule. Its positive side is, of course, well known and appreciated. The immune system is our first and best line of defense against illness. Over the last decade and a half, biomedical researchers have discovered the system’s other side. Its fighting off infections and inflammations can facilitate the ensuing and growth of tumors. This discovery has, in turn, caused the need to come up with another one: to understand the underlying mechanisms triggering this detrimental side effect of the system’s actions.

Using a preclinical mouse model of hepatitis and of hepatic cancer, research groups at the University of Tel Aviv (headed by Professor Eli Pikarski and Yinon Ben-Neriah) and at the Heidelberg-based DKFZ German Cancer Research Center (under the leadership of Dr. Peter Angel and Dr. Jochen Hess) initiated the Molecular mechanisms of inflammation induced liver cancer joint project. The two groups identified key molecules in cells of the immune system and tumor cells that encode cell membrane proteins or that represent constituents of intracellular signaling cascades to the nucleus driving carcinogenesis in the setting of chronic inflammation. These findings create novel therapeutic strategies for liver and other forms of infection-dependent cancer.
Also featuring the participation of DKFZ researchers and undertaken under the leadership of the Center and of Israel’s Ministry of Science and Technology was the Identification and functional analysis of protein phosphorylation and dephosphorylation in the ATM-mediated DNA damage response. ATM Kinase is one of the most important of the very many enzymes participating in the mission-critical processes in cells. ATM Kinase is the “repair manager” of DNA. Should DNA’s double-strand chains of molecules be ruptured by such outside agents as chemicals or radiation, ATM Kinase steps in. It activates and interacts with a large number of the proteins responsible for repairing the rupture and thus avoiding lasting damage to genetic materials. ATM Kinase was identified some 15 years ago by Dr. Yosef Shiloh, a professor at the University of Tel Aviv. In 2005–2008, Dr. Shiloh and Dr. Wolf-Dieter Lehmann of the DKFZ determined how these “repair” proteins are phosphorylated and thus regulated by ATM Kinase. The researchers managed to plot the steps marking the alteration of the individual proteins by this process.

**Oceanography**

The melting and shrinking of mountain glaciers, the icecaps and Greenland – the effects of the greenhouse gases-caused warming of the globe are to be seen everywhere. Less apparent but equally momentous is how the planet’s largest expanses – its oceans – and the life populating them are responding to the greater heat and precipitation of such gases into them. This is even though such trends are altering the ocean surface’s pH at a rate three times greater than that of the transition from glacial to interglacial periods – itself a period of revolutionary change.

Determining and quantifying such effects were the objectives of Effects of Global Warming and Higher CO2 Levels on Aquatic Nitrogen Fixation. This project was sponsored by BMBF and MOST and conducted during 2006–2009 by project leader Dr. Julie LaRoche of the Leibniz Institute for Marine Studies at the Christian-Albrechts University in Kiel and by Israeli partner Dr. Ilana Berman-Frank of Bar Ilan University of Ramat Gan. Playing instrumental parts in the research were the two pre-docs: Stefanie Sudhaus (in Kiel) and Orly Levitan (in Ramat Gan).

Venues were the waters of the Gulf of Aqaba and off the Cap Verde islands, at which samples of diazotrophic organisms were collected. They were then subjected under the controlled conditions of a laboratory in Israel to increased concentrations of carbon dioxide and temperature. Monitored was also how the organisms responded to the resultant changes in the sample water’s pH. In addition to conducting photosynthesis, these organisms also have the trait of being able to fix nitrogen or N2 gas. They are thus a major biological source of this essential nutrient in the remote ocean gyres.

**Environmental research**

Non-scientists associate algae with a brown tinge to the water and slime clinging to damp rocks. Many of these persons are not aware of an important fact. These micro-organisms product huge amounts of oxygen – and fix – via organic compounds – an equally large amount of carbon dioxide from the atmosphere.

An especially large influence upon the planet’s carbon dioxide budget is exerted by diatoms. Coming in 100,000-odd species, the diatoms generate more than one fifth of the oxygen and biomass produced by the plant world. Accordingly and correspondingly, these tiny algae are, collectively, one of the greatest “fixers” (consumers of carbon dioxide) from the atmosphere.
Despite the diatoms’ overriding importance, relatively little is known about their molecular biology and biochemistry. To remedy this, Professor Peter Kroth of the University of Konstanz and Professor Aaron Kaplan of the Hebrew University of Jerusalem have joined to conduct, starting in 2010, Living well with a scrambled metabolism: CO2 fixation and carbohydrate pathways in diatoms. This project is being sponsored by GIF. The biologists pursuing it are investigating the special metabolic paths enabling the algae’s cells to achieve a higher – than land-based plants – rate of efficiency of amassing biomass.

**Food safety**

Assuring the purity of their food is one of consumers’ most pressing concerns. This is entirely understandable. Safe food is one of the prerequisites for a healthy life. Over the past few decades, meat has been a prime focus of this concern. Undertaken from 2006–2009 by a BIO-DISC consortium featuring Agrobigen (Germany) and Bactochem (Israel) and universities from the two countries (including the Humboldt University) and Israel’s Agricultural Research Organization (Volcani Center of Bet Dagan), Population wide system for traceability and genetic characterization in cattle to enhance animal health and food addressed this concern. This bilateral working relationship produced a powerful instrument of control and diagnostics. It will impart the greatest possible transparency to the meat production process by enabling inspectors and veterinarians to ascertain and track the origins and routes taken along the processing chain of each cow and of every product made from it. While doing so, it will put an end to livestock rustling still endemic in Israel and many other parts of the world.

This identification uses genetic material taken from tissue extracted during the legally-required ear-tagging of cows. This material is then subjected to a high throughput screening procedure employing selected genetic markers. In addition to genotyping, this material yields important information on the presence of viruses and other causes of diseases. This process also enables the demonstration – and at an early stage – of an animal’s actually being a disease-carrier – even though it displays no symptoms of such. Thanks to this, such bearers can be removed from herds before infecting them.

**Physics**

In 1959, theoretical physicist Richard Feynman gave his landmark speech “There’s plenty of room at the bottom” at the California Institute of Technology. In it, his audience was asked to consider a vision: of technologies capable of miniaturizing mechanical and electrical devices to scales of a few billionths of a meter in length. Today, such ‘nanotechnologies’ are well-established, and they are putting many aspects of Feynman’s visions into practice. The ensuing nanostructures are in widespread use – as components of data storage, signal processing and ultra-sensitive measuring devices.

A laser beam is used to address the atoms forming a lattice of light.

Requisite to set forth the rise of the nanotechnologies, and to thus enable further innovations in integrated circuit technology, sensor technology and other fields, is a more detailed understanding of the principles governing the performance of electronic and mechanical nanostructures.

That is the purpose of Mesoscopic Electromechanical Effects in Suspended Nanostructures. Being conducted from January 2009 – December 2011 by a team from Munich’s Ludwig-Maximilians University and from Tel Aviv University and from Haifa’s Technion, this GIF project is a collaboration of theoretical and experimental physicists. It investigates the interplay of mechanical vibrations, electron transport and light-induced effects in freely suspended nanostructures. An understanding of these effects on the
mesoscopic scale—describing the regime between atomic dimensions and the macroscopic world—has the potential to drive innovations and to write a new chapter in the nanotechnologies’ story of success.

Now completing its second decade as a full-fledged discipline, the quantum physics of ultracold atoms has become one of science’s most productive fields. Being advanced in such centers as the Max Planck Institute for Quantum Optics (MPQ) in Garching (Munich’s northern high-tech suburb), the Ludwig Maximilians University of Munich, and the Weizmann Institute of Science (WSI) in Rehovot is our comprehension of how matter and energy act and interact in the quantum world.

One particularly exciting field is quantum information, which strives to harness the principles of quantum mechanics to the creation, processing, storing and transmission of information. One product of this research will someday be—among others—ICT (information and communication technology) devices with speeds, sophistication, securities and capacities exponentially greater than today’s ones.

A leader in this field is Dr. Immanuel Bloch, who is both a director at MPQ and a professor at Munich’s Ludwig Maximilians University. Bloch and his colleagues at LMU and the WSI are currently carrying out the “Quantum phase ultracold atoms in optical lattices” project.

The project’s goal is to meet one of quantum physics’s major and two-part challenges: understanding the workings of quantum many body systems and then engineering and exploiting such quantum systems for quantum information purposes or quantum simulations.

The focuses of the research are on realizing and controlling such systems using ultra-cold atomic or molecular quantum gases. Starting with ultracold gases of degenerate quantum matter of bosons or fermions held in optical and magnetic traps, the researchers impose crystals of light on top of the atoms in order to trap them in controlled periodic potentials. Such arrays can serve as versatile model systems for condensed matter physics, or as useful quantum information processors and effective setups for precision atomic and molecular physics measurements.

Water management

Israel has both a largely semi-arid climate and a strongly growing population and business community—each with an avid thirst for water. A central source of this resource is the Jordan River and its tributaries. Their traversing national borders makes the requisite management of their water a highly politicized affair. The surface level of the Dead Sea—the deepest point of the catchment area—is falling at a rate of up to one meter a year. This accords the
highest priority to achieving the highest possible efficiency – and thus sustainable – use of this valuable resource.

The first step was to carry out a detailed survey of the complexly configured geology of the area’s underground. The survey then was used in the creating of 3D models of several side valleys of the Jordan basin. A case study of such is provided by Hydrogeological investigations of the sustainable utilization of potable water in the Mar Sab/Feshka area of the Dead Sea. This project was headed by Professor Heinz Hoetzl of the Karlsruhe Institute for Technology (KIT), by Professor Akiva Flexer of the University of Tel Aviv and by Dr. Joseph Guttmann of Israel’s state MEKOROT water supply authority. The project led to the successful drilling of potable water wells, and served as the core of the SMART Project on the integrated management of water resources in the Lower Jordan Valley. Being pursued from 2006–2013, this substantially larger-multilateral project is being coordinated by KIT and features the participation by 21 partner institutions. These are located in Israel, Palestine and Jordan. The project has thus set up a transnational dialogue. The project’s objective is to encompass rain, potable and brackish groundwater and sewage in an integrated management concept. Its highlights are the building of decentralized sewage treatment and small-scale desalination facilities, the formulation of models of groundwater, and the establishment of groundwater conservation areas.

Bioethics

How do non-medical personnel in Germany and Israel perceive, deal with and discuss two of the most difficult decisions facing medicine? That query forms the gist of the GIF project on Cross-Cultural Ethics of Health and Responsibility: expert and lay perspectives regarding bioethical dilemmas in Germany and Israel. Its term is from January 2010 – December 2012, and it is being conducted by Dr. Silke Schicktanz of the University Medical Center Göttingen and by Dr. Aviad Raz of the Ben Gurion University of the Negev.

The decisions are whether or not to undergo as an adult a genetic test determining if you are the carrier of a gene that increases your risk of some day developing a grave disease, and how to deal with the question of withholding or withdrawing treatment in end-of-life situations. These decisions are embedded in perceptions of responsibility (to oneself, to family members and to society as a whole), and in understandings of the concepts of health, illness and quality of life.

To determine the contexts of and possible differences between the decision-making processes in Israel and in Germany, the researchers have created an innovative approach comprised of an analysis of guidelines and of bioethical expert discourses and of empirical sociological research. This allows for a comparative analysis of moral argumentation and of cultural factors underlying it.

This project is expected to yield a detailed and vivid portrayal of the differences and common ground – shared and transcending principles – existing between Israeli and German society.
Impetus for the future

New fields for the German-Israeli cooperation

Characteristic of this cooperation are its diversity and vitality. These traits mean that the fields in which Germany and Israel work together have not been established for all time. Rather, the range of fields receiving support undergoes an ongoing transformation. The objective of this transformation is to keep this bilateral working relationship at the highest level of excellence and at the cutting edge of technological change.

Research into civil security

Held in 2008, the German-Israeli Year of Science and Technology identified civil security as a new field of research. In 2011, only three years after having been initiated, the second call for proposals was published. Its topics are the “protection of mission-critical infrastructure”, “protection against crises and crisis management” and “securing of chains of goods”. Staged as early as 2009, the first joint call for proposals resulted in the selection of eight German-Israeli research projects for funding.

Humanities

Decisive impetus stemming from the German-Israeli Year of Science and Technology in 2008 took the form of establishing a bilateral working relationship in the humanities and in the social sciences, and the relationship’s expansion through the pursuing of joint research projects. In December 2009, the Foundation Martin Buber Society of Fellows in the Humanities was founded. It enables five Germans and five Israelis to join in researching at the Hebrew University in Jerusalem. In October 2011, other recipients of scholarships joined the Fellows’ ranks.

Fields of industrial research

Added in 2000 to the working relations existing between institutions of higher education and research facilities were those whose focus is on conducting research producing applications of use by the manufacturers in these dedicated consortia. The successes achieved by the BioDisc program and the second call for proposals (mentioned above) in the field of research into civil security details the potential of this cooperation. The pursuit of this form of working relationship led to the concluding of a letter of intent by BMBF and by MOITAL. Three new fields – the life sciences, information and communication technologies and material sciences – were identified and agreed upon.

Thruts ensuing from instruments fostering the further development of the cooperation

The ministries avail themselves of a range of instruments when identifying new fields and establishing how they are to be implemented.

Since 2010, the first ten Fellows of the Martin Buber Society have been conducting their research at the Hebrew University in Jerusalem. The photograph shows the Society’s director, Prof. David Shulman, and the Fellows undertaking a tour of Jerusalem’s historic center.

The job of these instruments is to parlay the thrusts of current developments into topics usable for the German-Israeli cooperation. Such a development is the alteration in the worldwide security situation. This has enhanced the focus on the area of civil security. The ever-faster technological and societal transformations sweeping our world have mandated the strengthening of the humanities, which play the role of being the guardian of our cultural heritage.
German-Israeli Forum on Research Cooperation

The first German-Israeli Forum on Research Cooperation took place in June 2011. Its objective was to strengthen and expand the German-Israeli cooperation in the fields of science and technology. To accomplish this, the forum was to showcase the successes achieved by the cooperation, and, by doing such, to make its potential apparent. The forum was also to use its discussions and expert sessions to identify new fields of research cooperation. Taking place at the same time, the Umbrella Symposium was to detail the long history of the German-Israeli research cooperation. Comprised of scientists from RWTH Aachen, from the Jülich Research Center and from the Technion in Haifa, this working relationship turned 25 in 2011. The expert sessions held at the research forum focused on:

- the computational neurosciences
- marine research
- sustainable water technology
- software development for supercomputers
- the development of Regional Research Centers in and with Sub-Saharan Africa

Intergovernmental consultations

A channel for the reciprocal exchange between Germany and Israel on the intergovernmental level is offered by the German-Israeli Intergovernmental Consultations, which have been taking place since 2008. In the course of such a consultation, which was staged in 2010, Prof. Annette Schavan, Germany’s Federal Minister of Education and Research, and Prof. Daniel Hershkowitz, her Israeli colleague, agreed to extend the cooperation to comprise research projects in and with Africa. In the same year Prof. Annette Schavan and Israel’s Minister of Industry, Trade and Labor agreed to pursue the cooperation in the area of industrial research by encompassing new fields of research, by extending the working relationship in vocational education, and by working under the auspices of EUREKA, which is Europe’s association for industrial research.

A year later, on January 31, 2011, Prof. Annette Schavan and Mr. Gideon Sa’ar, Israel’s Minister of Education, signed a joint declaration announcing their assumption of the patronage of a conference of the two countries on the sciences. This will be held in 2012.
Committees of coordination

A joint committee handles the coordination of the inter-ministerial working relationship in the area of research. The committee’s members are representatives of the ministries and national bodies involved. Venue for its annual meeting alternates between Germany and Israel. The work on the scientific level of these working relationships is facilitated by steering and advisory committees. These issue recommendations as to which projects are to receive support. The committees also appraise results. The steering committees strengthen and coordinate bilateral ties being staged upon such intra-European platforms as those in which both countries participate (EUREKA, Eurostars, FP7).

In their own words: scientists on Israel, Germany and Europe

Dr. Johannes Hamann, Psychiatric Clinic, Center for Disease Management, TU Munich, holder of a GIF Young Scientist scholarship (2009)

How essentially do patients want to participate in the decisions involving them, and how can they get themselves involved in such situations?

This question has been occupying my attention since my early days as an assistant doctor in the Psychiatric Clinic of the TU Munich. The initial scientific investments on this topic retained the approach of providing patients with a good briefing on the medical evidence available on the methods of treating their ailments. It, however, quickly became apparent that the dissemination of information does not suffice to get the patients proactively participating in such decisions. To research an approach focusing more strongly upon behavior capable of bringing about this activation, I applied in 2007 for a GIF scholarship. The organization’s call for proposals perfectly fit my needs, in that GIF didn’t establish any requirements as to the contents of projects eligible for support. This gave me the opportunity to secure funding for my rather unconventional project. Included in the project was a trip to Israel. I went there once my project had been completed in order to find partners for forthcoming projects. Much to my surprise, my search caused me to stumble across a working group at the University of Haifa that turned out to be researching the same subject. Their approach, however, used a totally different procedure.

Getting to know Dr. Roe and Dr. Karniel-Miller of the University of Haifa was a true stroke of luck. Their specialization on a qualitative method proved the ideal complement to my quantitative one. This perfect fit led us to resolve to jointly place an application for a new GIF project. This had been jointly formulated in Israel and was in the process of being appraised. My impressions from my first trip to Tel Aviv were that it is an impressive, highly positive place – and an incredibly beautiful one to boot. My Israeli colleagues were exceptionally warmhearted. They were creative, open and uncomplicated when it came to pursuing our project. There is nothing more wonderful for a scientist than working hard and closely with soul mates on a research project. Our concept is to meld the quantitative and qualitative approach to the researching of patient participation in treatment, and to conduct studies employing this combined approach in both countries. This will enable us to take into account intercultural particularities. The desired outcome is to bring about an alteration of the balance of power between patients and their physicians.

Dr. Eckart Schrank, Institute for Applied Geosciences, TU Berlin, and recipient of a GIF grant (2007 – 2010)

The proposal to jointly undertake a research project on the evolution of flowering plants came from my colleague Prof. Valentin Krassilov, a paleobotanist at...
“Israel has become part of Europe”

Prof. Moshe Zimmermann is one of Israel’s leading historians, and is a renowned expert on German, Israeli and Jewish history and their intertwining. His expertise has made him a sought-after commentator on current events in Europe and the Middle East. Among the many major prizes conferred upon him have been the Humboldt Prize, the Jacob and Wilhelm Grimm Prize of the German Academic Exchange Service, the Dr. Leopold-Lucas-Prize of the University of Tübingen, and the Lessing Prize for Critique.

Professor Zimmermann, over the past five decades, Germany and Israel have forged a myriad of ties to each other in the areas of research, business, the arts, scholarship, and sports and tourism. Do the breadth, depth and number of these ties mean that the era of rapprochement is largely over in the German-Israeli relationship, and that the two countries have embarked upon one of normalcy?

Zimmermann: The persons in the street in Israel seem to think so. The Koebner Center takes part in a yearly public opinion poll. Their findings over the last few years have been that some 75% – 80% of the Israelis believe that there is now “another Germany” and that Israeli-German relations are normal! There is only one group – religious Jews – that is relatively reserved when it comes to Germany. Israelis have learned to live with a kind of schizophrenia about Germany. Present-day Germany is seen as being a very positive place; the Germany of the past – the source of the worst trauma imaginable.

Looking at the number and extent of research relationships maintained between Israel and Germany and with the rest of Europe reinforces the impression that in very many ways – except of course physically - Israel has become part of the continent. Do you share that impression?

Zimmermann: I do and in view of the history of the founding of Israel, it is anything but surprising. The impetus for this founding came from European Jews, who wanted to set up a bridgehead for the continent in the Middle East. And the ensuing European orientation and affinities have been maintained to this day, the Orientalization of Israeli life notwithstanding. The path of high-tech development taken by Israel has of course facilitated this trend.

the University of Haifa. I immediately agreed to his idea, as the project was the ideal complement to my previous studies on this topic. I had gotten to know Professor Krassilov in the mid-1980s. In those days he was still living in the then Soviet Union. In the following years, we kept on running into each other at congresses, at which we would update each other about our research. A large-scale and international research project undertaken by the TU Berlin took me to Egypt and northern Sudan. This trip to northeastern Africa brought me in immediate proximity to Israel, where Valentin Krassilov had gotten a position at the University of Haifa. Funding from GIF made it possible for me to start also researching in Israel in 2007.
Impetus for the future

Dr. Eckart Schrank

Viewed from the paleogeographic point of view, today’s Israel is in the northern part of the former Gondwana continent. That makes it highly interesting to us paleobotanists, because this is an area thought to have been one of the cradles of the first flowering plants. There are nowadays several hundred thousand species of them, making them the present’s most numerous forms of plants. These ancient-most remnants turn up as early as in the Lower Cretaceous. The questions of which ecological conditions prevailed in those days, and how this group of plants arose and flourished so very successfully in them are two of the most interesting unanswered ones of paleobotany. The working relationship with my Israeli colleagues was especially fruitful.

This was because the parameters of the GIF project permitted us to work on the same sections, and, at the same time, to research precisely in our respective and complementary areas of specialty. Professor Krassilov predominantly investigates such macrofossils as leaves, fruits and woods. These are to be seen with the naked eye. I, on the other hand, devote myself to pollen and spores identifiable using only a microscope. Our research took us from Haifa into the field – primarily to Makhtesh Ramon und Makhtesh Qatan in the Negev. These are home to interesting geological sections. Joined by our colleagues and staff members, we spent several weeks during 2007–2009 gathering plant macrofossils and a large number of sediment samples. These were investigated for the presence of fossil pollen and spores. The initial results stemming from our work have already been presented at conferences and published in an international magazine. The material that we secured is so rich in fossils that its full-scale evaluation is going to take quite a bit of time.

Dr. Cornelia Aust, Fellow (2010 – ) of the Foundation Martin Buber Society of Fellows, Hebrew University of Jerusalem

After having studied in Leipzig, Jerusalem, Berlin and Warsaw, I received my Ph.D. in history from the University of Pennsylvania in Philadelphia. Concluded in May 2010, my dissertation was on “Commercial Cosmopolitanism. Networks of Jewish Merchants between Warsaw and Amsterdam, 1750–1820”. In 2008–2009, I was a fellow at the Katz Center for Advanced Judaic Studies in Philadelphia. Being a historian of Jewish history, Israel and Jerusalem in particular provide of course a great environment to do research and make progress on my work. For that reason, I applied for the Martin Buber Fellowship in the spring of 2010 while finishing my dissertation. My fellowship started in September 2010. Being a fellow at the Martin Buber Society has proven a great opportunity to set forth my research work and to start upon new projects. The layout of the Society not only gave me the opportunity to work in a structured framework and to meet and exchange with the other postdoctoral fellows and colleagues at the Hebrew University but to also work on publishing articles and turning my dissertation into a book. It’s about the Jewish mercantile elite in Central and Eastern Europe from the second half of the eighteenth to the early nineteenth century. I expect to finish that in mid-2012, and to then start upon a new research project while in Israel. My research and writing is facilitated by the very comfortable conditions provided by the Buber Society of Fellows and the closeness to relevant primary sources and secondary literature in Jerusalem.
“We’re sought-after partners because our research is so effective”

Professor Mina Teicher is one of Israel’s most distinguished scientists. After earning in 1981 her doctorate in mathematics from the University of Tel Aviv, she embarked upon the main phase of her academic career, which has supplied her with a bevy of prestigious academic appointments, visiting professorships and research sojourns in ten countries. Dr. Teicher also served two stints as the Chief Science Officer of Israel’s Ministry of Science and Technology – and one as the ministry’s Director General. Dr. Teicher has also held a wide range of professional positions. She is currently professor of mathematics at the Emmy Noether Institute and Minerva Center for Mathematics at Bar-Ilan University in Ramat-Gan. Dr. Teicher’s research is in the area of algebraic geometry. It is yielding the mathematical tools – including algorithms – required to undertake such challenging operations as calculating the shape of the universe, as configuring neural networks, and as giving computers exceptional vision capacities.

My family emigrated from Germany to Israel in 1848, in the aftermath of the revolution. So we have been in Israel for many generations. I came to Germany in 1988 and started working with Friedrich Hirzebruch, the great mathematician, at the Max Planck Institute in Bonn. He played a seminal role in my life. His approach to algebraic geometry served as the basis for mine. His unswerving commitment to advancing science, supporting scientists and promoting science collaborations proved an inspiration to me. My other role model is Emmy Noether, one of the greatest scientists of the 20th century. She was a mathematician and physicist who grew up in an era in which women were not supposed to become either. She was forced, moreover, to flee Germany. All throughout her career, she always took care of the young students around her. She created a school that is shaping contemporary science. Why Israel is so sought after as a partner is very simply because we are so very efficient when conducting research. We are a small country with limited resources, so we have to get the most out of what we have been able to set up and develop - scientific institutions of world renown. These have joined with a dedication to innovation in making us sought-after partners. This pertains to the USA, the emerging markets in East Asia and Europe. A figure indicating this productivity is that Israel by itself accounts for 1% of the world’s scientific papers. Israel’s scientific relationships with Germany and with the EU have been developing strongly because there are sound motives impelling such. The reasons for including Israeli facilities and companies in research consortia are no longer based on history, but rather on an appreciation of what we in Israel have to offer. Our strengths and areas of specialty form a match with and a complement to those in Germany and Europe.
Dr. Carl Philipp Emanuel Nothaft, Fellow (2010 – ) of the Foundation Martin Buber Society of Fellows, Hebrew University of Jerusalem

After having received in 2008 a M.A. in modern and ancient history and philosophy from the University of Munich, I secured a scholarship from the Studienstiftung des deutschen Volkes. This enabled me to spend until 2010 on conducting research for my doctoral dissertation, which explores pre-modern attempts to date the life of Jesus Christ and their influence on the development of historical chronology in the period between 200 and 1600. I was personally invited to join the Martin Buber Society (MBS) as a doctoral fellow by its director, David Shulman, following a recommendation of one of the members of the academic committee. Being a member of the MBS has facilitated my research in that it has given me the time and technical facilities that I require to devote myself to my work. My book is now nearly finished and will be published at the end of this year. In addition to this, while at MBS, I have written a number of scientific papers, produced public talks, and published a newspaper article. What strikes me is how remarkably collaborative the atmosphere among Israeli academics is. This makes researching here a highly positive experience.

Dr. Andreas Kraft, Fellow (2010 – ) of the Foundation Martin Buber Society of Fellows, Hebrew University of Jerusalem

I studied German, English and American Literature at Konstanz University. My doctoral thesis was on “Jewish Identity in the Liminal: the Poet Nelly Sachs and the Holocaust”. As a former research fellow at the “Norm and Symbol” special research area of Konstanz University, I was part of an interdisciplinary project that investigated the transgenerational transfer of historical experiences and identity conflicts in Germany. My path to Israel was via my superior at the time, Professor Aleida Assmann, who brought my attention to the Buber Society. I wasted no time in applying. The Buber Society offers me the space and the infrastructure that I require to totally and highly efficiently concentrate on my research. Also helping my work has been the rapidity and ease with which I got in touch with the Israeli research community. Of particular benefit is the Society itself. My colleagues here provide ample intellectual stimulation and are, to boot, highly pleasant and professional. My project here investigates the important of artistic media in dealing with wrath and vengeance. My current focus is “Jewish Rage and Revenge”. My time in Jerusalem has been spent compiling the foundations of my research. I have also written several essays, and have gathered materials for a book. Should my stay in Jerusalem be extended, it could well be that this monograph will “come to the world” in this city. The basic processes of research are very much the same in Israel and Germany. There are differences – of varying degrees – in the relationships prevailing at the countries’ institutions of higher education. Paths are shorter in Israeli universities. This means that colleagues are easier to contact, and that hierarchies aren’t quite so steep.
Contact addresses

Germany

- Embassy of the state of Israel in Berlin
  http://www.israel.de

- Federal Ministry of Education and Research (BMBF)
  http://www.bmbf.de/en

Program of cooperation

- BMBF-MOITAL-MOST Cooperation in the Sciences and Technology
  http://www.cogeril.de

- German-Israeli Foundation for Scientific Research and Development (GIF)
  http://www.gif.org.il

- German-Israeli Program on Cooperation in Vocational Education
  http://www.inwent.org/israel

- German-Israeli Project Cooperation (DIP)
  http://www.dfg.de/toerderung/programme/internationales/deutsch_israelische_projektkooperation/index.html

- German Research Foundation (DFG), Trilateral Cooperation
  http://www.dfg.de/toerderung/programme/internationales/trilaterale_projekte/index.html

- The Martin Buber Society of Fellows
  http://buberfellows.huji.ac.il

- Minerva Foundation, Gesellschaft für die Forschung mbH, Munich
  http://www.minerva.mpg.de

Exchange programs

- Alexander von Humboldt Foundation (AvH)
  http://www.humboldt-foundation.de/web/home.html

- German Academic Exchange Service (DAAD)
  http://www.daad.de/en

Political foundations

- Friedrich Ebert Foundation
  http://www.fes.de

- Friedrich Naumann Foundation for Freedom
  http://www.en.freiheit.org

- Hanns Seidel Foundation
  http://www.hss.de/english.html

- Heinrich Böll Foundation
  http://www.boell.de/service/home.html

- Konrad Adenauer Foundation
  http://www.kas.de/wf/en/

Private foundations

- Bertelsmann Foundation
  http://www.bertelsmann-stiftung.de/cps/rde/xchg/SID-E11E0A13-658F2EF0/bst_engl/hs.xsl/index.html

- Fritz Thyssen Foundation
  http://www.fritz-thyssen-stiftung.de/home/?no_cache=1&l=1&cHash=117ad62f5979fb5992654769d2e7644

- Hubert Burda Foundation
  http://www.hubert-burda-stiftung.de/en

- Volkswagen Foundation
  http://www.volkswagenstiftung.de/index.html?L=1

- ZEIT Foundation

Associations of scientists

- Arbeitsgemeinschaft industrieller Forschungsvereinigungen “Otto von Guericke” (AiF)
  http://www.aif.de

- Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung (FhG)
  http://www.fhg.de/en

- Helmholtz-Gemeinschaft Deutscher Forschungszentren
  http://www.helmholtz.de/en

- Max Planck Society (MPG)
  http://www.mpg.de/en

- Wissenschaftsgemeinschaft Gottfried Wilhelm Leibniz
  http://www.wgl.de
Appendix

Miscellaneous

- German Business Portal
  http://www.german-business-portal.info

- Germany Trade and Invest – Gesellschaft für Außenwirtschaft und Standortmarketing mbH
  http://www.invest-in-germany.com

Israel

- German embassy in Tel Aviv
  http://www.tel-aviv.diplo.de

- Israeli Science and Technology Website
  http://www.science.co.il

- Ministry of Industry, Trade and Labor MOITAL
  http://www.moital.gov.il

- Ministry of Science and Technology MOST
  http://www.most.gov.il

Israeli universities and research facilities

- Bar-Ilan University, Ramat Gan
  http://www1.biu.ac.il/indexE.php

Minerva Centers

Bar-Ilan University

- Emmy Noether Institute and Minerva Center for Mathematics
  http://u.cs.biu.ac.il/~en/i/

- Minerva Center for Microscale and Nanoscale Particles and Films as Tailored Biomaterial Interfaces
  sukenc@gefen.cc.biu.ac.il

- Minerva Center for Physics of Mesoscopics, Fractals and Neural Networks
  http://ory.ph.biu.ac.il/Minerva/Minerva1.html

Ben-Gurion University of the Negev

- Reimund Stadler Minerva Center for Mesoscale Macromolecular Engineering
  www.bgu.ac.il/RS_Minerva/index.htm

Hebrew University Jerusalem

- Carl Melchior Minerva Center for Macroeconomics and Growth
  msgalor@pluto.mscc.huji.ac.il

Economic Mission of Israel in Germany

http://www.israeltrade.gov.il

Invest in Israel

http://www.investinisrael.gov.il
Franz Rosenzweig Minerva Center for German-Jewish Literature  
http://sites.huji.ac.il

Franz Ollendorf Minerva Center for Information and Automation  
zeevi@ee.technion.ac.il

Georg Sachs Minerva Center for Materials Processing and Structure Characterization  
http://materials.technion.ac.il/Minerva.html

Minerva Optimization Centre  
http://ie.technion.ac.il/Labs/Opt/

Schlesinger Minerva Laboratory for Life Cycle Engineering  
http://mecadserv1.technion.ac.il/public_html/schlesinger/schlesinger.htm

Fritz Haber Minerva Center for Molecular Dynamics  
http://www.fh.huji.ac.il

Otto Loewy Minerva Center for Cellular and Molecular Neurobiology  
http://otto-loewi-center.huji.ac.il/

Otto Warburg Minerva Center for Biotechnology in Agriculture  
http://www.agri.huji.ac.il

Richard Koebner Minerva Center for German History  
mszimm@pluto.msc.huji.ac.il

Wilhelm Kühne Minerva Center for Studies of Visual Transduction  
mnke@md.huji.ac.il

Tel Aviv University

Dead Sea Minerva Center  
http://www.tau.ac.il/~zviba/

Hermann Minkowski Minerva Center for Geometry  
http://www.math.tau.ac.il

Julius Friedrich Cohnheim Minerva Center for Cellular and Molecular Phagocyte Research  
epick@post.tau.ac.il

Minerva Center for the Humanities  
http://mhc.tau.ac.il/en/?p=14

Minerva Institute for German History and Wiener Library  
joseb@post.tau.ac.il

Weizmann Institute of Science

Albert Einstein Minerva Center for Theoretical Physics  
http://www.weizmann.ac.il/physics/einstein_physics.html

Gerhardt M.J. Schmidt Minerva Center on Supramolecular Architecture  
http://www.weizmann.ac.il

John von Neumann Minerva Center for the Development of Reactive Systems  
http://www.wisdom.weizmann.ac.il/~reactive/

Josef Cohn Minerva Center for Biomembrane Research  
zvi.livneh@weizmann.ac.il

Multi-institutional Minerva Centers

James Franck Binational German-Israeli Minerva Programme in Laser Matter Interaction
- Ben-Gurion University
- Hebrew University of Jerusalem
- Technion – Israel Institute of Technology
- Tel Aviv University
- Weizmann Institute of Science
Appendix

Lise Meitner Minerva Center for Computational Quantum Chemistry
- Hebrew University of Jerusalem
- Tel Aviv University

Max Wertheimer Minerva Center for Cognitive Processes and Human Performance
- Technion – Israel Institute of Technology
- University of Haifa

Minerva Center for Human Rights
- Hebrew University of Jerusalem
- Tel Aviv University

Minerva Center for Nonlinear Physics of Complex Systems
- Technion – Israel Institute of Technology
- Weizmann Institute of Science

Partnerships between Israeli and German institutions of Higher Education

**Bar-Ilan University**
Dresden University of Technology
Humboldt University of Berlin
Magdeburg-Stendal University of Applied Sciences
Martin Luther University of Halle-Wittenberg
Otto von Guericke University of Magdeburg
University of Kassel
University of Ulm

**Ben-Gurion University of the Negev**
Bergische University of Wuppertal
Beuth University of Applied Sciences for Technology Berlin
Bremen University of Applied Sciences
Dresden University of Technology
Martin Luther University of Halle-Wittenberg

**Technion Haifa**
Osnabrück University of Applied Sciences
Technical University of Berlin
Technical University of Darmstadt
Technical University of Hamburg
University of Bielefeld
University of Jewish Studies Heidelberg

**Osnabrück University of Applied Sciences**

**Technical University of Berlin**

**Technical University of Darmstadt**

**Technical University of Hamburg**

**University of Bielefeld**

**University of Jewish Studies Heidelberg**

**Alice Salomon University of Applied Sciences Berlin**

**Anhalt University of Applied Sciences**

**Carl von Ossietzky University of Oldenburg**

**Dresden University of Technology**

**Free University of Berlin**

**Gottfried Wilhelm Leibniz University of Hanover**

**Heidelberg University**
Humboldt University of Berlin
Karlsruhe Institute of Technology
Magdeburg-Stendal University of Applied Sciences
Martin-Luther University of Halle-Wittenberg
Mittweida University of Applied Sciences
RWTH Aachen University
Stuttgart University of Applied Sciences for Media and Communication
Technical University of Berlin
Technical University of Braunschweig
Technical University of Hamburg
Technical University of Kaiserslautern
Technical University of Munich
University of Bochum
University of Bonn
University of Freiburg
University of Hamburg
University of Jewish Studies Heidelberg
University of Passau
Witten/Herdecke University

Hebrew University Jerusalem

University of Haifa
Beuth University of Applied Technical Sciences Berlin
Bucerius Law School, University of Applied Jurisprudence
Dresden University of Technology
Free University of Berlin
Magdeburg-Stendal University of Applied Sciences

Martin Luther University of Halle-Wittenberg
Technical University of Braunschweig
Technical University of Munich
University of Bayreuth
University of Bielefeld
University of Düsseldorf
University of Hamburg
University of Konstanz
University of Mainz
University of Osnabrück
University of Potsdam
University of Tübingen
University of Würzburg

Alice Salomon University of Applied Sciences Berlin
Free University of Berlin
Humboldt-University of Berlin
Magdeburg-Stendal University of Applied Sciences
Martin Luther University of Halle-Wittenberg
Stuttgart University of Applied Sciences for Media and Communication
Technical University of Berlin
Technical University of Braunschweig
University of Bochum
University of Bonn
University of Freiburg
University of Hamburg
University of Heidelberg
University of Jewish Studies Heidelberg
University of Passau
Witten/Herdecke University

Tel Aviv University
Beuth University of Applied Technical Sciences Berlin
Bucerius Law School, University of Jurisprudence
Dresden University of Technology
Free University of Berlin
Magdeburg-Stendal University of Applied Sciences

Abbreviations

ARO Agricultural Research Organization
AvH Alexander von Humboldt Foundation
BIO-DISC German-Israeli Cooperation in Biotechnology
BMBF Federal Ministry of Education and Research
BMU Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
BMZ Federal Ministry for Economic Cooperation and Development
CERN European Organization for Nuclear Research
CHE Council of Higher Education (central body managing Israel’s institutions of higher education and colleges)
COST European Cooperation in the Field of Scientific and Technological Research
DAAD German Academic Exchange Service

DFG German Research Foundation
DIP German-Israeli project cooperation in future-oriented fields
DKFZ German Cancer Research Center
DLR German Aerospace Agency
EMBL European Molecular Biology Laboratory
EMBO European Molecular Biology Organization
ESRF European Synchrotron Radiation Facility
EUREKA European Initiative for Market-Oriented Industrial Research and Development
FIRST program promoting fields of research underrepresented in Israel
FP Framework Programme for Research and Technological Development
The significance of the cooperation between Germany and Israel

Sources, literature and photographic credits:

Sources and literature

Adenauer, Konrad: Erinnerungen 1953-1955, DVA-Stutt-
gart, 1966

Bar-Zohar, Michael: David Ben-Gurion, Lübbe Verlag, 
Bergisch-Gladbach, 1988

Birrenbach, Kurt: Meine Sondermission, Econ Verlag, 1984

DKFZ: Krebsforschung und Kooperation: Deutsch-
Israelische Zusammenarbeit in der Krebsforschung – Die 
ersten 20 Jahre, Heidelberg, 1999

Federal Foreign Office: Die Bundesrepublik Deutsch-
land und der Nahe Osten. Dokumentation, Bonn, Reihe: 
Berichte und Dokumentationen, 1987

Federal Ministry of Education, Science, Research and 
Technology: 40 Jahre wissenschaftlich-technische Koope-
ration mit Israel, Documentation, Berlin, 2000

Federal Ministry of Education, Science, Research and 
Technology: Eindrücke und Erfahrungen über die 
deutsch-israelische Wissenschaftskooperation, 1995

Feldmann, Lily G.: The Special Relationship between West 
Germany and Israel, George Allen & Unwin, Boston, 1984

GDP gross domestic product

GIF German Israeli Foundation for Scientific Research and 
Development

GLOWA Globaler Wandel des Wasserkreislaufes – Global 
transformation of water circulation system

IMPRS International Max Planck Research School

Inwent Internationale Weiterbildung und Entwicklung 
gGmbH

ISA Israeli Space Agency

ISERD Israeli Directorate for EU Framework Program

ISF Israeli Science Foundation

IST Information Society Technology, part of the EU’s 
Framework Program

KMK Permanent Conference of the Ministers of Culture of the 
States of the Federal Republic of Germany

LIFE Quality of Life and Management of Living Resources, 
part of the EU’s Framework Program

M.A. Magister Artium

MOITAL Ministry of Industry, Trade and Labor

MOST Ministry of Science and Technology

MPG Max Planck Society

NCRD National Council for Research and Development

OECD Organization for Economic Cooperation and Deve-
lopment

OCS Office of the Chief Scientist

R&D Research and Development

RWTH Rheinisch-Westfälische Technische University of 
Applied Sciences, Aachen

SMART Sustainable Management of Available Water 
Resources with Innovative Technologies

TU Technical University
The German-Israel Foundation for Research and Development: Highlights of Scientific Cooperation; GIF Projects and Meetings, Jerusalem, 1995

Gerwin, Robert: Gemeinsamer Brückenschlag in die Zukunft, Ed.: Weizmann Institute, Rehovot/Zurich/Munich, 1993

KMK: Wissenschaftsbeziehungen zwischen der Bundesrepublik Deutschland und dem Staat Israel, Bestandsaufnahme der Länder in der Bundesrepublik Deutschland über die Hochschulkooperation, Bonn, 1995

Nachmansohn, D., Schmidt, R.: Die große Ära der Wissenschaft in Deutschland 1900 bis 1933, Wissenschaftliche Verlagsgesellschaft mbH Stuttgart, 1988


Vogel, Rolf: Der deutsch-israelische Dialog, Dokumentation, Munich 1987

Contributions on the results of working relationships

Barak, Amnon and Leie, Stephanie, GIF

Hoff, Holger and Nicklas, Ulrich, GLOWA

Kahle, Felix, Minerva

Lottner, Volkmar, Forschungszentrum Jülich GmbH, PTJ-ERG

Metzger, Hans-Joachim, Projektträger Forschungszentrum Karlsruhe, Bereich Wassertechnologie und Entsorgung (PTKA-WTE)

Momburg, F., German Cancer Research Center (DKFZ), Heidelberg

Peterson, Hans-Peter, Forschungszentrum Jülich GmbH, PTJ-BIO

Regenbogen, J., GATC

Semmler, Wolfhard, German Cancer Research Center (DKFZ), Heidelberg

Thunecke, Heinz, Projekträger im DLR