In the Labyrinth of Petaflops

It is a superlative brain, and has a somewhat boastful name to reflect this: SuperMuc. "Muc" refers to Munich, which isn't entirely correct, with the more than 100-ton computer being located outside the city limits of the Bavarian capital – in a 500-square-meter hall of the Leibniz Supercomputing Centre on the campus in Garching. And that is, after all, an independent (researcher) community. SuperMuc can perform three petaflops, or three trillion computing operations per second. If we humans wanted to compete, then all three billion adults on the planet would have to simultaneously perform a million computing operations within the blink of an eye.

It's no wonder, then, that the equipment, which was inaugurated in mid-July, is in the champion's league of computers, and ranks fourth worldwide. And it's only logical that SuperMuc is very popular among scientists. Stefanie Walch, for instance: the researcher at the Max Planck Institute for Astrophysics is interested in cosmic nurseries – clouds of molecules in which new stars are born. These also include the occasional heavyweights that heat up the cloud, disperse the gas and, in this way, drastically reduce the birth rate.

Keeping a cool head, Stefanie Walch wrote her algorithms for this simulation – the largest one to date – of the life cycle of a molecular cloud. However, the computer does get quite hot when computing such furious natural phenomena. To keep it from overheating, it's cooled with water at a temperature of about 40 degrees Celsius running through its interior. At such a temperature, people would have a fever, but SuperMuc can easily withstand 70 or 80 degrees. As we said: a superlative brain.