



Echoes from the Past: In November 1572, a new star appeared on the firmament – a supernova. Danish astronomer Tycho Brahe was among those who witnessed this massive cosmic explosion. He discovered that the “stella nova” was much farther from the Earth than the moon. This stood in stark contradiction to the then-current world view according to Aristotle, in which the translunar world – including the sphere of the fixed stars – was invariable and eternal. Now the object has made history once again: More than four centuries later, astronomers obtained this color image of Tycho’s star. It is a composite of infrared and X-ray images taken with the 3.5-meter telescope at the Calar Alto Observatory and with the *Spitzer* and *Chandra* space telescopes.

The photo shows the expanding envelope of matter (green, yellow) having temperatures of millions of degrees. This envelope was formed by the thermonuclear explosion of a white dwarf. The outer shock-wave appears as a blue ring of high-energy electrons. Newly created dust, as well as dust that was heated up due to interaction with the circumstellar matter, glows red. By observing light echoes, researchers have now succeeded in spectroscopically analyzing the explosion itself, in a time machine of sorts. According to these findings, it was a normal Type Ia supernova. This object class is very important due to its use as a standard candle for cosmology, and recently led to the discovery of dark energy.

PHOTO: MPI FOR ASTRONOMY/OLIVER KRAUSE

