

German Space Science Programme and International Collaborations as Destiny+ Dust Analyzer

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As part of the German Aerospace Center, the German Space Agency acts as implementation organization of the German Space Programme. One pillar of the German Space Programme is the space science. Therefore enabling national and international collaborations of scientific experiments and projects designed to perform research in space is one of the main activity of the Space Science department at DLR Space Agency. The field of research covers objects within our solar system as well as far distant galaxies and the universe as a whole.

DLR Space Science divides thematically into three main topics:

Astronomy and Astrophysics

Scientists use telescopes and highly sensitive detectors to understand the origin, the evolution, and the macrostructure of the universe and its constituents from the earliest beginnings to present. Measurements of cosmic rays yield information about high-energy acceleration processes. At present, scientists are particularly interested in the relevance of black holes, in the investigation of dark matter and dark energy, and in the search for extrasolar planets.

Sun and Planetary System

Studying the sun with high spatial resolution allows researchers to understand fundamental physical processes. Their observations help us to understand the processes in the interior of the sun and in the space between the planets that is filled by the plasma and the magnetic field of the solar wind.

Investigation of planetary bodies, moons, comets and other primordial bodies as asteroids in the Solar System aiming, while delivering images and data to understand the origin, development, and structure of these bodies and to understand the origin and formation of life on Earth.

Fundamental Physics

Space offers conditions that are unattainable in laboratories on Earth, such as weightlessness and absence of vibrations. In metrology, quantum optics, and atomic physics, these conditions permit measurements at considerably higher precision, opening a door to answers fundamental questions in quantum theory and the general theory of relativity (gravitational theory) as well as to the potential unification of both theories.

Most projects are implemented either under the framework of missions by ESA, for which German scientists provide individual instruments or instrument sub-systems or within direct international cooperation as it is for the provision of the Destiny+ Dust Analyzer for the JAXA Destiny+ mission. Funding of individual projects then involves either placing contracts with the industry or providing grants to science institutes.