



## Bachelor Thesis Work

### DE: Entwicklung eines Konzepts für die Destiny<sup>+</sup> Dust Analyser Operations-Phase Development of a concept for the Destiny<sup>+</sup> Dust Analyser operations phase

#### Motivation:

DESTINY+ is a deep space mission of the space agency ISAS/JAXA (Japan). The launch of the electrically propelled space probe is planned for 2021. After swing-by maneuvers on the Moon, it is scheduled to reach the active asteroid Phaethon in 2026 and study it during the fly-by. In addition to testing new technologies, scientific issues will also be investigated. Part of the scientific payload is a new dust telescope, which will characterize interplanetary and interstellar microparticles. In particular, the chemical composition is to be precisely determined by mass spectrometry. The dust telescope will be developed at the IRS and built and tested together with industry.

The requirements of the flight software for Destiny+ Dust Analyser are derived from the scientific and mission specific requirements. This also includes the derived requirements resulting from the operational phase. To derive these requirements, a concept of the operational phase is required. Data packages, data flows, data storage, evaluation of science data, telecommands and housekeeping data shall be considered. Necessary Software tools and processes should also be developed and evaluated in this concept.

The goal of this work is to develop a concept for the operation phase (process, tools, licences, etc.) and to discuss this concept with the Destiny+ Dust Analyser team members. In a further step, flight software requirements from the concept shall be derived. Necessary software tools and components for the development of the concept should be evaluated and assessed.

#### Tasks:

- Creation of an operation phase concept
- Discussion with Project team
- Derivation of flight software requirements
- Evaluation of software tools
- Documentation

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Starting date:           From now on

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Signature of the student

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