

SUCCESS: Latvia is communication partner of an deep space missions, asteroid deflection and mining technology consortium



International consortium to ensure future Mars, the Moon, near-Earth orbit asteroid avoidance and mining missions. The main objective of this project is to design, develop and qualify a future propulsion system and simulation tools to support all these challenging missions - and Latvia is part of it.

International consortium comprising seven partners - leading space industry representatives, research centres, university and SMEs develop an innovative technology to ensure future Mars, the Moon, near Earth orbit asteroid avoidance and mining missions. The main objective of this project is to design, develop and qualify future propulsion system and simulation tools to support all these challenging missions.

The project CHEOPS VHP BB complement ongoing thruster-focused development activities with research and development on the future actual use of very high-power Hall thruster systems. The project will use robust and cost-effective approach to qualification, manufacturability of key components subject to wear, typically the discharge chamber and cathode and the ability to envisage alternative propellants and

power sources.

Vanessa Vial, project coordinator, Research and Development programme manager at Safran Spacecraft Propulsion: *"Sustainability in Space has become a strategic topic and a clear expectation from all stakeholders. Particular attention is on future constellations and collision-related risks due to the increasing number of satellites orbiting around the Earth. New solutions must be developed to optimize satellites' life expectancy and remove existing space debris. This project is a chance for the future of the European Space Industry with the development of a 100% European-made solution capable of settling Europe as a key player in the future space economy/environment."*

The global space community becomes more and more interested in planetary explorations to the Moon and Mars, in near Earth orbit asteroid avoidance, in mining missions as well as in-orbit servicing missions. In-orbit servicing mission scenarios span a broad range of applications to improve the quality of service in space and include existing satellite life-extension operations, salvage, relocation, de-orbiting, robotics, space situational awareness and logistics.

Most of the consortium partners have been working jointly for more than two years to setup a large industrial venture including propulsion technology experts, space systems architects, and specialists of air or maritime logistics. This has been undertaken to jump-start the emergence of systems and networks that would place Europe at the forefront of the development of space activities on an industrial scale. Be it as single or clustered units, the combined thrust of these electric propulsion systems paves the way to allowing larger spacecraft and longer missions to be envisaged.

The Consortium of the CHEOPS VHP BB project

- **Safran Spacecraft Propulsion** (France) - project coordinator, who is also responsible for developing technological building blocks as well as methodologies for future sustainable qualification,
- **Aerospazio Tecnologie SRL** (Italy) responsible for diagnostic development, testing and test analysis,
- **University of Pisa** (Italy) for investigation of novel and outstanding solutions for the thrusters discharge chambers and anodes,
- **The Leibniz Institute of Surface Engineering** (Germany) responsible for adaptation and use of Advanced Electric Propulsion Diagnostic platform for thruster testing,
- **Centre national de la recherche scientifique** (CNRS) (France) for plasma-wall interaction studies by laser diagnostics and erosion modelling,
- **Thales Alenia Space France SAS** (France) for mission analysis and system requirement for thruster design and qualification methodology,
- **WIT Berry** (Latvia) responsible for project's communication and dissemination activities.

The project has received a co-funding from the European Union under, ID101082532. The project started in January 2023, and its duration is 30 months.

More information: Guna Valtere, communication manager at WIT Berry E-mail: guna@witberry.lv



Co-funded by
the European Union