



Seminar



Jeannette Heiligers

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Sailing in Space: Novel Mission Concepts for Solar Sail Spacecraft

Solar sail technology has gained significant momentum through recent successes such as JAXA's IKAROS mission and NASA's NanoSail-D2 mission. Research in the field is flourishing and new solar sail initiatives are scheduled for the future, including The Planetary Society's LightSail-1 mission (launch 2016). Solar sails exploit the radiation pressure generated by solar photons reflecting off a large, highly reflective sail to produce a thrust force. As such, they are not constrained by propellant mass and therefore enable high-energy and long-duration mission concepts.

This seminar will go into the current status of solar sailing, give an outlook and describe a range of novel solar sail mission concepts, highlighting the Earth applications that some of these concepts enable: sub- L_1 missions for advanced space weather forecasting, heliocentric Earth-following orbits for NEO surveillance, displaced geostationary orbits to guarantee the availability of geostationary slots in the future, and pole-sitter orbits for high-latitude Earth observation, to name a few.

During her 3-month visit at CCAR, Dr Heiligers will extend her work on solar sailing with the search for new families of solar sail orbits in the Earth-Moon system. The talk will end with an overview of the intended work to foster discussion and potential collaborations across the department.

Friday, January 30, 2015
2:00 – 3:00 pm
DLC Bechtel Collaboratory

Jeannette Heiligers received her BSc and MSc from Delft University of Technology, the Netherlands, in 2008, after which she worked as a junior consultant in the Dutch space industry for 1 year. She returned to academia and completed her PhD at the Advanced Space Concepts Laboratory (ASCL) of the University of Strathclyde, Glasgow, United Kingdom, in 2012. Since then she has led the research theme on the 'Orbital dynamics of large gossamer spacecraft' at the ASCL as a research associate.