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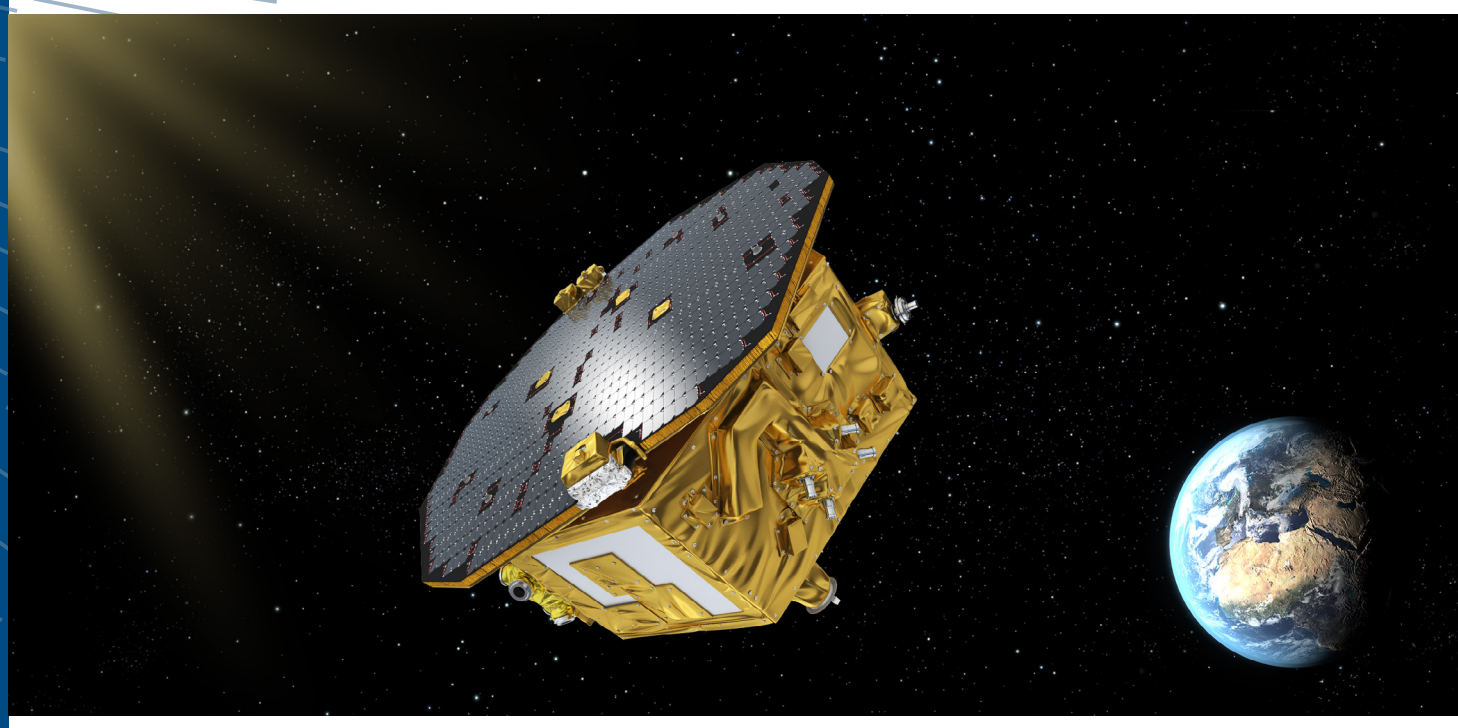
LISA Pathfinder and Tests of Alternative Gravitational Theories

Christian Trenkel

LISA Pathfinder's (LPF) main payload is effectively the most sensitive gravity gradiometer ever flown. In this talk we present some of its main characteristics, including in-flight measured performance. We then review previous proposals to use the LPF spacecraft to test alternative theories of gravity, such as Modified Newtonian Dynamics (MOND). Contrary to initial expectations, LPF would not have been able to conclusively rule out these theories, and the scientific case for an LPF mission extension was considered insufficient. Based on the lessons learnt with LPF, we suggest possible future mission scenarios that might allow a more robust test of these theories.

Short Bio

Dr. Trenkel obtained a PhD in Experimental Gravitational Physics at University of Birmingham. He has been a Postdoc Fellow at Imperial College, London, during 2004-2006. He joined Airbus in 2007, and worked on LISA Pathfinder for 8 years.



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