



Lecture No. 106

Czech Society for Mechanics and Institute of Thermomechanics, CAS

invite you to a research seminar

Technical challenges in the LISA project and the contribution from the Czech Republic

given by

Prof. Niels Lund

National Space Institute Astrophysics and Atmospheric Physics,
DTU, Copenhagen, Denmark

and

Institute of Physics of the Czech Academy of Sciences, Prague

The Czech Republic will contribute to ESA's LISA gravitational wave mission both in the scientific analysis efforts and by delivery of one of the delicate mechanisms on the ultra-precise Optical Benches which are at the heart of the LISA measurement scheme. The Czech instrument contribution is important – but we may hope it will never be used! This may sound strange, but it is like the Fire Brigade; we know it is important – but we hope it will never be used in our neighbourhood!

The LISA project will launch three satellites in a formation flying formation. The technical goal is to measure variations in the inter-satellite distances of 2.5 million km ($2.5 \cdot 10^9$ m) with a precision better than pico-meters (10^{-12} m), i.e. a relative error of 10^{-21} ! Only if we can achieve this level of precision can we detect the small deformation of space caused by the gravitational waves!

In the lecture I shall first briefly describe the very complex measurement scheme of LISA and explain where the Czech contribution comes in.

**The lecture will be held on Thursday, November 11, 2021 at 13:00
in the building of the Institute of Thermomechanics (large lecture room),
Dolejškova 5, 182 00 Prague 8**

Contact persons: Radek Kolman, Hanuš Seiner, Miroslav Chomát