



Máster Universitario en  
Ingeniería de  
Telecomunicación

## Ciclo de Conferencias del MUIT: Laser Interferometry in Space

~~Fecha~~ el Mié, 13/12/2023 - 16:30

**Título:** "Laser Interferometry in Space"

**Ponente:** Juan José Esteban (Max-Planck-Institute for Gravitational Physics, Albert-Einstein-Institut, Hannover, Alemania)

**Abstract:** A laser interferometer typically combines a number of beams that travel different optical paths to determine factors such as lengths, surface irregularities or the index of refraction of materials. Heterodyne detection is a well-established method for sensing tiny optical pathlength displacements through measurements of the phase shift between interfering signals. The ability of measuring displacements with high dynamic range and accuracy at the picometer-level has made this technique a crucial resource in many high-precision metrology applications, particularly for gravitational physics experiments in space, where one of the interfering beams is sensed at ultra-low light power. This talk gives an overview of novel designs and developments for inter-satellite laser ranging instruments able to extract picometer-stable displacement and nanometer-stable tilt measurements, enabling attitude control, absolute positioning, clock synchronization and optical data transfer.



**Fecha, Hora y Lugar:** miércoles, 13 de diciembre, 16:30 a 18:30, Aula 1.5 ETSIIT.

**Asistencia online:** <https://meet.google.com/xec-pmtu-jht>

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