

Mirror Coatings for Gravitational-Wave Detectors

Tuesday, 24 October 2023 13:40 (20 minutes)

Highly-reflective coated mirrors are the heart of interferometric gravitational-wave detectors, such as LIGO, Virgo and the planned Einstein Telescope. However, thermal noise of the coatings is one of the limiting noise sources of the detectors, preventing us from seeing weaker, more distant or new astrophysical objects. Besides reduced thermal noise, there are also a number of strict requirements on the optical properties of such coatings, making it extremely challenging to achieve significant improvements.

This poster will explain the role of mirror coatings in gravitational-wave detectors and the requirements and challenges in developing new coatings for current and future detectors. The aim of this poster is to give an overview of this complex research topic, tackled by several dozens of research groups world wide, to provide the fundamentals and context of the more specific research topics currently targeted within the Netherlands and presented on related posters.

Presenter: STEINLECHNER, Jessica

Session Classification: Posters

Track Classification: Instrumentation and R&D