



UNIVERSITY
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Department of Physics

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**2023, May 17 – 2:00 p.m.
Room A204**

Observing the Universe by looking at matter at the scale of 10^{-20} M

Abstract

Eight years after the first detection of Gravitational Waves, the scientific community has begun to think about the next generation of GW detectors that will be able to probe the visible Universe and beyond to the Dark Age, when stars were not yet born. To achieve this goal requires a huge effort to improve the performance of all detector subsystems. The seminar will focus on reducing thermal noise that limits the detector in the frequency band where it is most sensitive. Reducing the dissipation processes within the materials used in the mirrors and their suspensions offers the possibility of acquiring unique information about black holes and neutron stars on the other side of the Universe. The status of materials research for the Virgo and LIGO detectors and the prospects for future detectors such as the Einstein Telescope and the Cosmic Explorer will be explained.

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