



Contribution ID: 172

Type: poster

Molecular Dynamics simulations to study dissipation in amorphous SiNx

Thursday, 20 May 2021 16:28 (1 minute)

In interferometric gravitational wave detectors, thermal noise from the mirrors, originating from mechanical dissipation in the coating films, represents the major limitation to sensitivity. Significant experimental effort has led to improvements during these years and currently the most advanced technology is the one of amorphous coatings. Yet, there is still a lack of understanding of the involved dissipation mechanisms. Atomic modeling and simulations can play an important role in elucidating the physical processes and guiding the choices of optimal coating materials. In this framework, within this work we numerically study dissipation in amorphous SiNx, which represents a promising candidate as a possible solution for the reduction of mechanical losses in coating films. Following the approach proposed in previous works [1,2], here we apply the experimental protocol of the mechanical spectroscopy to atomistic simulations.

[1] Puosi, Fidecaro, Capaccioli, Pisignano, D. Leporini, Phys. Rev. Research **1** 033121 (2019)

[2] Puosi, Fidecaro, Capaccioli, Pisignano, D. Leporini, Acta Materialia **201** 1 (2020).

Primary authors: PUOSI, Francesco (INFN Pisa); LEPORINI, Dino (University of Pisa); FIDECARO, Francesco (University of Pisa and INFN); PISIGNANO, Dario (University of Pisa); CAPACCIOLI, Simone (University of Pisa)

Presenter: PUOSI, Francesco (INFN Pisa)

Session Classification: Poster session 2

Track Classification: Workshops: Coating thermal noise workshop