

## Measurement of Acoustic Loss in Nano-Layered Coating Developed for Thermal Noise Reduction

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**Abstract :** Structural relaxation processes in optical coatings represent a fundamental limit to the sensitivity of gravitational waves detectors, MEMS, optical metrology and entangled state experiments. To face this problem, many research lines are now active, in particular the characterization of new materials and novel solutions to be employed as coatings in future gravitational wave detectors. Nano-layered coating deposition is among the most promising techniques. We report on the measurement of acoustic loss of nm-layered composites ( $\text{Ti}_2\text{O}/\text{SiO}_2$ ), performed with the GeNS nodal suspension, compared with sputtered  $\lambda/4$  thin films nowadays employed.

**Keywords :** mechanical measurement, nanomaterials, optical coating, thermal noise

**Conference Title :** ICN 2016 : International Conference on Nanotechnology

**Conference Location :** Rome, Italy

**Conference Dates :** May 02-03, 2016