

Optical characterization of the Fabry-Perot arm cavities of Virgo and preparation of the numerical methods

lundi 17 juin 2024 14:20 (20 minutes)

Optical characterization is crucial to models correctly the behavior of the interferometer and to optimise its working condition. In order to estimate some optical parameters of the Virgo arm Fabry-Perot cavities (such as g-factor, radius of curvature (RoC) of the test masses, finesse, mismatching with respect to the input beam) a free spectral range (FSR) measurement campaign is currently being carried out. Such scans of arm cavities allow to compare the optical parameters with the design values, and also act on the tuning of the RoC actuators to equalize the two arm parameters. This presentation will be focused on the last measurements done and the modal analysis used to perform the optical parameters estimation. Such analysis is crucial to prepare robust numerical methods for the optical characterization of post-O4 and Virgo_nEXT, in the context of the stable recycling cavities.

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Classification de Session: Contributions (15' + 5' de questions)