

The status of CAOS laboratory

The CAOS (Center for Applications on Gravitational Waves and Seismology) laboratory, part of the ETIC (Einstein Telescope Infrastructure Consortium) project, represents a significant Italian initiative designed for advancing third-generation gravitational wave detector technologies. CAOS has been envisioned as a hub for collaborative innovation and testing, particularly focusing on the next-generation suspension chains for the Einstein Telescope.

Currently under construction in Perugia, the laboratory will feature two 15-meter vacuum towers equipped with superattenuators to realize a seismic isolated Fabry-Perot cavity. There is also potential for incorporating a third tower to accommodate an interferometer in the future.

This presentation will provide an overview of the infrastructure's current status, highlight some initial studies, and discuss forthcoming developments concerning the construction, the vacuum towers, and the superattenuators.

Primary authors: GENNAI, Alberto (Istituto Nazionale di Fisica Nucleare); PARISI, Alessandro (Università di Perugia); STOLLO, Alessio (UNIPG); PAOLI, Andrea (EGO); GRADO, Aniello (INFN - UNIPG); PASQUALETTI, Antonio (EGO); FABOZZI, Carlo (EGO); MAJORANA, Ettore; TRAVASSO, Flavio; BIANCHI, Francesco (INFN-Perugia); FRASCONI, Franco (INFN Pisa); CAPOCCIA, Gabriele (INFN-PG); VOCCA, Helios (Università di Perugia); HARMS, Jan; Dr LUCCHESI, Leonardo (INFN Pisa); Dr ORSINI, Leonardo (INFN Pisa); NATICCHIONI, Luca; BAWAJ, Mateusz (University of Perugia); BALDICCHI, Nicolo (Università degli studi di Perugia); CHESSA, Piero (University of Perugia); ROMBOLI, Riccardo (EGO); TRAVAGLINI, Riccardo (INFN - Sezione di Bologna); TOMARU, Takayuki (NAOJ); Dr CHIARUSI, Tommaso (INFN - Sezione di Bologna)

Presenter: BIANCHI, Francesco (INFN-Perugia)

Track Classification: Instrument Science (ISB): Suspensions