

Nuclear astrophysics at Gran Sasso Laboratory: the LUNA400 experiment

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Nuclear fusion reactions are the heart of nuclear astrophysics: they sensitively influence the nucleosynthesis of the elements in the earliest stages of the universe and in all the objects formed thereafter, and control the associated energy generation, neutrino luminosity, and evolution of stars. LUNA (Laboratory for Underground Nuclear Astrophysics) is an experimental approach for the study of nuclear fusion reactions based on an underground accelerator laboratory.

Since 1991 the LUNA Collaboration has been directly measuring cross sections of nuclear processes belonging to Hydrogen burning and Big Bang nucleosynthesis relevant in several astrophysical scenarios, in the underground laboratories of Laboratori Nazionali del Gran Sasso (LNGS) with unprecedented sensitivity, due to the huge background suppression available in the underground location. In this talk, after a general introduction, the latest LUNA results and ongoing measurements will be presented.

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