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EXPERIMENTAL CHALLENGES IN UNDERGROUND NUCLEAR ASTROPHYSICS LABORATORY: PRESENT STATUS AND FUTURE OPPORTUNITIES

Monday, 19 June 2017 16:30 (30 minutes)

Accurate knowledge of thermonuclear reaction rates is important in understanding energy generation, neutrino luminosity and nucleosynthesis in stellar interiors.

Natural and Cosmic-ray-induced background can seriously limit the determination of reaction cross-sections at relevant energies for astrophysics. In order to improve the signal-to-noise ratio special care in experimental setups arrangement must be considered.

In this talk I will review the experimental techniques adopted in underground nuclear astrophysics, giving an update of main results obtained, which shed lights on several key nuclear reactions that take place in various astrophysical scenarios.

Moreover, I will give an overview of worldwide facilities, discussing the status and perspectives of the experiments which are running from several years or are in constructions or in early stage of development. I will, in particular, show their major scientific drivers, which will clearly lead to significant progress in answering many open questions in nuclear astrophysics

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