

LABORATORI NAZIONALI DEL GRAN SASSO

SEMINAR ANNOUNCEMENT

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***α -induced reactions and
deep underground
neutron background
measurements for DIANA***

Low-energy (α, n) reactions in stellar helium and carbon burning provide the neutrons for the formation of elements beyond iron by the slow neutron capture process. The very low cross sections at stellar energies necessitate the use of high-efficiency detectors as well as measuring in a very low neutron background environment. By going deep underground the neutron flux can be reduced by orders of magnitude compared to surface levels, enabling the measurement of reactions for nuclear astrophysics at previously inaccessible energies. I will discuss the recent measurement of two alpha-induced reactions that are typical examples for future measurements underground and present first results of measurements of the thermal neutron background at various deep underground sites considered possible locations for DIANA.

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