

# The ongoing deep underground measurement of $^{22}\text{Ne}(a,n)^{25}\text{Mg}$ at the Ion Beam Facility of the INFN-LNGS

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The reaction  $^{22}\text{Ne}(a,n)^{25}\text{Mg}$  is a nuclear reaction of critical importance for a variety of astrophysical scenarios. While much effort has been devoted on the study of the low energy cross section through indirect measurements, direct cross section and resonance measurements have been severely hampered by the low event rate. This problem is currently being approached at the Bellotti Ion Beam Facility of the Gran Sasso National laboratory (LNGS) in the framework of the ERC-funded project SHADES. A direct measurement in the ultra-low neutron background of the LNGS using a sensitive neutron detection array has recently begun its experimental campaign. We will report on the experiment and on the status and first results of the measurement.

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