

DNP10-2010-020225

Abstract for an Invited Paper
for the DNP10 Meeting of
the American Physical Society

Underground measurements of cross section of astrophysical

GIANLUCA IMBRIANI, INFN, Naples

New direct experimental methods and techniques, combined with the development of new theoretical tools have opened new avenues to explore nuclear reactions of significance for nucleosynthesis at or near the actual temperatures of stellar burning. The main problem of direct measurements is determined by the background signals, which, together with the low cross sections, set a limit to the energy range that can be investigated with a simple setup on the Earth surface. Essentially there are three sources of background, i.e. cosmic rays, environmental radioactivity and beam-target induced nuclear reactions. Each of these sources produces background of different nature and energy, so that each reaction to be studied deserves a special care in suppressing the relevant background component. I will focus my attention on underground measurements describing the LUNA experiment and results.