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Underground Nuclear Astrophysics

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Cross section measurements for quiescent stellar H and He burning are hampered mainly by extremely low counting rate and cosmic background. Some of the main reactions of H-burning phase have been measured at the LUNA facility (Laboratory for Underground Nuclear Astrophysics) taking advantage of the very low background environment of the Underground Gran Sasso National Laboratory in Italy. An overview of the adopted experimental techniques will be given together with the latest results on the $^{14}\text{N}(p,\alpha)^{15}\text{O}$ reaction and the status of the ongoing experiments. Furthermore a brief summary of possible future experimental methods coupling low background environment and detector techniques will be presented.

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