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Abstract for an Invited Paper
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Nuclear Astrophysics at the Gran Sasso Underground Laboratory

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The origin and build up of elements is one of the key questions for our understanding of the universe. Thermonuclear nucleosynthesis processes occurring in stellar and explosive scenarios are responsible for the production of the elements. The talk will focus on the experimental study of quiescent stellar H and He burning nuclear reactions whose cross section measurements 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 results on the $^{14}\text{N}(p,g)^{15}\text{O}$ and $^3\text{He}(4\text{He},g)^7\text{Be}$ reactions and the status of the ongoing experiments. Furthermore a brief summary of possible future studies and experimental methods that could be used in a new underground facility, will be presented.