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Nucleosynthesis in the early Galaxy: Progress and challenges.

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Chemical imprints left by the first stars in the oldest stars of the Milky Way gives clues of the stellar nucleosynthesis responsible for the creation of elements heavier than iron. Recent progress in astronomical observations and in the modeling of the chemical evolution of the Galaxy have shown that multiple nucleosynthesis processes may operate at those early times. In this talk I will review some of that evidence along with the important role that nuclear reactions play in those processes. I will focus in progress in our understanding of the rapid neutron capture process (r-process) and in new results on nucleosynthesis in core-collapse supernovae and neutrino-driven winds that produce elements up to silver. I will show some examples of recent nuclear physics measurements addressing the need for better nuclear data and give an outlook of the remaining challenges and future plans to continue those measurements.