

Publication

7Be(n,α) and 7Be(n,p) cross-section measurement for the cosmological lithium problem at the n_TOF facility at CERN

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The Cosmological Lithium Problem refers to the large discrepancy between the abundance of primordial ^7Li predicted by the standard theory of Big Bang Nucleosynthesis and the value inferred from the so-called “Spite plateau” in halo stars. A possible explanation for this longstanding puzzle in Nuclear Astrophysics is related to the incorrect estimation of the destruction rate of ^7Be , which is responsible for the production of 95% of primordial Lithium. While charged-particle induced reactions have mostly been ruled out, data on the 7Be(n,α) and 7Be(n,p) reactions are scarce or completely missing, so that a large uncertainty still affects the abundance of ^7Li predicted by the standard theory of Big Bang Nucleosynthesis. Both reactions have been measured at the n_TOF facility at CERN, providing for the first time data in a wide neutron energy range.

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