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Progress of the Study of Neutron Interactions with ^{7}Be[1] EMILY E. KADING, MOSHE GAI, University of Connecticut, CHRISTOPH SEIFFERT, THIERRY STORA, ISOLDE/CERN, SHLOMI HALFON, MICHAEL PAUL, Hebrew University of Jerusalem, US-ISRAEL-SWITZERLAND COLLABORATION
— Big Bang Nucleosynthesis (BBN) is today a parameter-free theory. It correctly predicts the abundance relative to hydrogen, of primordial deuterium, helium, and helion but over predicts the relative abundance of primordial ^{7}Li which is primarily (95%) the byproduct of the decay of ^{7}Be. This has been dubbed as the primordial ^{7}Li problem. We are proposing to study the interaction of neutrons with ^{7}Be in order to understand the direct destruction of the primordial ^{7}Be. The experiment being proposed will be performed at the SARAF facility in Israel using the LiLiT neutron generator and an implanted ^{7}Be target produced at ISOLDE from a ^{7}Be sample produced at the PSI. An implantation set up was constructed and tested at ISOLDE using 35 keV ^{10}B. The implanted ^{10}B targets were tested using the intense CERN Pu-Be source. For the first generation measurement of the ^{7}Be(n,α) reaction we plan to use CR-39 plastic track detectors to detect the emanating alpha-particles (and protons). Such detectors were tested in our lab using alpha-source and we are developing the use of these detectors for our measurement. Future experiments will utilize a split gas ionization chamber and silicon detectors. We will review the progress of this research project.

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