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Cross-section measurements of ${}^7\text{Be} + d \rightarrow p + \alpha + \alpha$ and ${}^7\text{Li} + d \rightarrow n + \alpha + \alpha$ with ANASEN and their implication in the Standard Big Bang Nucleosynthesis(SBBN).¹ NABIN RIJAL, INGO WIEDENHOVER, L.T. BABY, J. BELARGE, S. KUVIN, Florida State Univ, J.C. BLACKMON, K.T. MACON, D. SANTIAGO-GONZALEZ, Louisiana State University, E. KOSHCHIY, G. ROGACHEV, Texas AM University — Astrophysically observed ${}^7\text{Li}$ is 3-4 times less than predicted by current models of SBBN. The nuclear reaction ${}^7\text{Be} + d$ at energies relevant to SBBN, has been discussed as a possible means to destroy mass-7 nuclei. We investigate the ${}^7\text{Be} + d$ reaction at SBBN energies using a radioactive ${}^7\text{Be}$ beam and deuterium gas target inside ANASEN (Array for Nuclear Astrophysics Studies with Exotic Nuclei). ANASEN is an active target detector system which tracks the charged particles using a position sensitive proportional counter and 24-SX3 and 4-QQQ position sensitive Silicon detectors, all backed up by CsI detectors. The experiment measures a continuous excitation function by slowing down the beam in the target gas down to zero energy. Our set-up provides a high detection efficiency for all relevant reaction channels. We also performed an experiment for the mirror nuclear reaction ${}^7\text{Li} + d$ with ANASEN in solid target mode as well as in gas target mode. The preliminary results of these experiments along with details of ANASEN will be presented.

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