The $^3He(\alpha,\gamma)^7Be$ reaction rate, solar ^7Be and ^8B neutrino fluxes, and the production of ^7Li during the Big Bang

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The $^3He(\alpha,\gamma)^7Be$ reaction plays an important role both in determining the predicted fluxes of ^7Be and ^8B neutrinos from our Sun, and in the calculation of primordial ^7Li production. In light of the highly precise determination of the baryon-to-photon ratio from the cosmic microwave background data [1], it is necessary to re-determine primordial ^7Li production.
Recent experimental nuclear astrophysics work has led to an improved determination of the $^3He(\alpha,\gamma)^7Be$ cross section, with several experiments clustered at E = 0.5 MeV center-of-mass energy and above [2, and references therein]. On the other hand, precisely calibrated ^7Be and ^8B neutrino fluxes from the Sun are now available [3, 4]. Assuming the accepted solar central temperature to be correct, the neutrino flux data can be used to determine the $^3He(\alpha,\gamma)^7Be$ cross section [5] at the solar Gamow peak, E = 0.03 MeV.
The energy range relevant for Big Bang ^7Li production lies just between 0.03 and 0.5 MeV. The poster aims to use the two above described levels in order to improve the precision of the predicted primordial abundance of ^7Li. It updates a previous work [6] that appeared before the new cross section, solar neutrino and microwave background data were available.

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