Towards a study of the holy grail reaction ^{12}C$(\alpha,\gamma)^{16}$O at Felsenkeller

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The reaction ^{12}C$(\alpha,\gamma)^{16}$O is of paramount importance for the nucleosynthesis of heavier elements in stars. It takes place during helium burning and determines the abundance of ^{12}C and ^{16}O.

Due to the low cross section of the reaction underground experiments are needed to measure this reaction at astrophysically relevant energies. A setup for a study of this reaction with a ^{12}C beam on implanted ^{4}He targets has recently been completed at the new Felsenkeller underground laboratory.

This contribution will report on Monte Carlo simulations of the setup and first ^{12}C beam tests underground.