Abstract Submitted
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Lifetime Measurement of the 6.79 MeV State in 15O to Help Constrain the 14N(p,gamma)15O Reaction Rate[1] NAOMI GALINSKI, TRIUMF, Simon Fraser University, SKY SJUE, LANL, BARRY DAVIDS, TRIUMF, RITUPARNA KANUNGO, Saint Mary's University, CHRIS RUIZ, TRIUMF, ULRIKE HAGER, Colorado School of Mines, TIGRESS GROUP TEAM[2] — The ^{14}N(p,γ)^{15}O reaction is the slowest reaction in the CNO cycle. The rate of this reaction is an important input into calculating the ages of globular cluster stars, determining the primordial core composition of our Sun and affects the amount of He ash produced in H burning shells in red giant stars and hence the nucleosynthesis of heavier elements. The largest remaining uncertainty in calculating the reaction rate is the lifetime of the 6.79 MeV excited state of ^{15}O. We report an upper limit of 1.84 fs on this lifetime. In addition we measured the lifetime of the 6.86 MeV state of ^{15}O to be $13.3^{+0.8}_{?1.2}$ fs.

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[2]A gamma ray detector group at TRIUMF.

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