



Contribution ID: 37

Type: not specified

Direct measurement of resonances in ${}^7\text{Be}(\alpha,\gamma){}^{11}\text{C}$ with DRAGON

Nucleosynthesis of the p -nuclei is one of the remaining unsolved puzzles in nuclear astrophysics. One possible mechanism for production of p -nuclei is the $nu;p$ -process, which is thought to occur in the ejecta of core-collapse supernovae. A recent study found that the p - p chain breakout reaction ${}^7\text{Be}(\alpha,\gamma){}^{11}\text{C}$ significantly influences nuclear flow in the $nu;p$ -process. However, the ${}^7\text{Be}(\alpha,\gamma){}^{11}\text{C}$ reaction rate is poorly known over the temperature range of interest ($T = 1.5 - 3$ GK). In this temperature range, the astrophysical reaction rate is dominated by resonant capture to states in ${}^{11}\text{C}$ within the Gamow window, three of which have unknown resonance strengths. A new direct measurement of ${}^7\text{Be}(\alpha,\gamma){}^{11}\text{C}$ was performed at TRIUMF's DRAGON recoil separator in order to measure the strengths and energies of these resonances. Experimental methods and preliminary results will be discussed.

Primary authors: Mr PSALTIS, Athanasios (McMaster University); Dr CONNOLLY, Devin (TRIUMF)

Co-authors: Prof. CHEN, Alan A. (McMaster University); Dr LENNARZ, Annika (TRIUMF); Dr DAVIDS, Barry (TRIUMF); Dr RUIZ, Chris (TRIUMF); Dr HUTCHEON, Dave A. (TRIUMF); Mr TENKILA, Gaurav (University of British Columbia); Ms GILARDY, Gwenaelle (University of Notre Dame); Mr LIANG, Johnson (McMaster University); Mr KARPESKY, Jonathan (Colorado School of Mines); Mr LOVELY, Matthew (Colorado School of Mines); Mr WILLIAMS, Matthew (TRIUMF); Dr ESKER, Nicholas (TRIUMF); Mr GIRI, Rekam (Ohio University); Mr PANERU, Som N. (Ohio University); Prof. GREIFE, Uwe (Colorado School of Mines); Mr HUANG, William (University of Northern British Columbia)

Presenter: Dr CONNOLLY, Devin (TRIUMF)