

HOW TO GET THE MOST BANG FOR YOUR BUCK!

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In the field of nuclear astrophysics, reaction cross sections are evaluated and thermonuclear rates presented for use in astrophysics calculations. Given their mainstream use, considerable effort is put forth to examine the nuclear physics input entering these calculations. As a part of this effort, I manage the JINA REACLIB database (<http://groups.nsl.msu.edu/jina/reactlib/db/>), which maintains up-to-date information on thermonuclear reaction rates and the JINA Nuclide database (<http://groups.nsl.msu.edu/jina/nucdata/lib/>) which stores nuclide property information, such as masses. Regardless of the existence of experimental data, theory is always used in some way to describe these reactions. I will use the poster-child reaction ${}^3\text{He}(\alpha,\gamma){}^7\text{Be}$ as my main example of how little and how much theory can be used. The comparison between theory and experiment provides insight into the nuclear physics problem. This insight can be used to improve theory and drive future experimental efforts.

Nuclear
Seminar

All interested
persons are
cordially
invited to
attend.