## **Nuclear Physics in Astrophysics XI**



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## **Gold activation measurement**

Neutron capture reactions in stars are responsible for forming about 99% of the elemental abundances heavier than Fe. The stellar neutron capture cross sections are the key nuclear physics input for s-process studies. Accurate normalization standards play an important role in  $(n,\gamma)$  reaction measurements. Two experiments were performed to determine the Maxwellian averaged cross section (MACS) of gold using the <sup>7</sup>Li(p,n)<sup>7</sup>Be reaction for neutron production. Shaping the proton beam energy and the sample covering a specific solid angle, neutron activation for measuring stellar-averaged capture cross section was performed. The first experiment measured the 0°-90° angle integrated Maxwell–Boltzmann neutron spectrum at 28 keV thermal temperature. Using the neutron field produced by protons of 3.17 MeV and an aluminum foil of 51 µm as proton energy shaper, a very accurate and direct MACS measurement is expected. The results of the second experimental measurement, the activation measurement, will be reported in the talk.

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