Contribution ID: **21** Type: **not specified**

Measurement of the reactions 17O(a,n)20Ne and 17O(a,g)21Ne and their impact on the s process in massive stars

Thursday, 6 February 2014 14:30 (1 hour)

The ratio of the reaction rates of the competing channels 17O(a,g)21Ne and 17O(a ,n)20Ne determines the efficiency of 16O as a neutron poison in the s process in low metallicity rotating stars. It has a large impact on the element production, either producing elements to the mass range of A=90 in case of a significant poisoning effect or extending the mass range up to the region of A=150 if the g channel is of negligible strength.
We present results of the first measurement of the reaction 17O(α,g)21Ne and an improved study of the reaction 17O(α,n)20Ne, including an independent measurement of the 17O(α,n1)20Ne channel. A simultaneous R-Matrix fit to both the n0 and the n1 channels has been performed. New reaction rates have been calculated and used as input for stellar network calculations and their impact on the s process in rotating massive stars is discussed.

Presenter: BEST, Andreas (INFN - LNGS)