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Investigation of the radiative strength function in ⁷⁴Ge

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Abstract content
   (Max 300 words)

The Radiative Strength Function (RSF) represents the ability of nuclear matter to absorb and emit photons. It is one of the input parameters, along with the nuclear level density, for the calculations of nuclear cross sections and reaction rates relevant to astrophysical processes which are invoked to explain the origin of elements heavier than iron [1]. In this work we investigate the dependence of the RSF on the spin and parity of the final state and on the different reactions to excite quasi-continuum states, which are found in the region of high-level density below the particle threshold. This provides not only information about the validity of the Brink hypothesis [2] but will also help to better understand reactions in astrophysical environments. In this effect, an international collaborative effort is made to study the gamma decay of the quasi-continuum states of 74Ge using different reactions at different experimental facilities in the USA, Europe and South Africa.

`In this talk I will give an overview of the collaborative experiments and will report on the preliminary results`

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[1] A.C. Larsen and S. Goriely, Phys. Rev. C 82,014318 (2010).
[2] D.M. Brink, PhD Thesis, Oxford University (1955).
[3] M.Wiedeking et. al., Phys. Rev. Lett. 108, 162503 (2012).

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