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Effect of uncertainties in the statistical model description of n,γ reactions to r-process nucleosynthesis

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%%% Title goes here.
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%%% Authors and affiliations are next. The presenter should be
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%%%
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While the role of the r-process in the synthesis of elements heavier than Iron is well established, the puzzling question of the actual astrophysical environment in which the process takes place still persists. In the current multi-messenger era, a multitude of observational information offers exciting opportunities to piece together an answer. Such efforts may depend critically in our ability to reproduce in nucleosynthesis calculations intricate features of the r-process abundance yield pattern (such as the location and height of the rare-earth peak, for example) in order to evaluate the feasibility of various nucleosynthesis scenarios. For such comparisons to be meaningful, however, uncertainties in the nuclear input that affect nucleosynthesis calculations have to be identified and evaluated. In this work, we study the effect of level density and gamma ray strength function modelling uncertainties to neutron capture reaction rates relevant for the r-process. The uncertainty observed in these reaction rates is also propagated to r-process abundance yields through reaction network calculations.

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%\noindent [1] E. Stark, Phys. Journal of the North 83 045801 (2011);
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%\noindent
%[2] O. Martell et al. submitted to Solar Physics Letters (2013).}
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%%% End of abstract.
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Session Classification: r-process 2