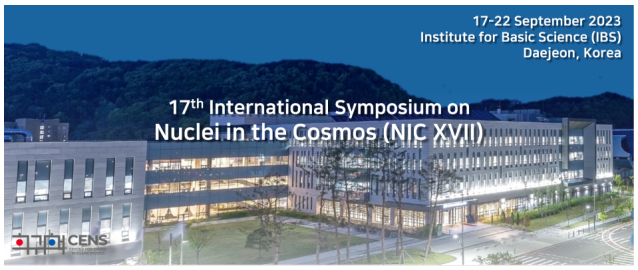

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The Impact of 1D and 3D NLTE Effects on neutron-capture elements

Tuesday, 19 September 2023 10:15 (15 minutes)

For a long time, 1D LTE (local thermal equilibrium) modelling has been the main approach in spectroscopic abundance determination of elements. However, the recent computational advancements has allowed us to explore both 1D NLTE (non-LTE) and 3D NLTE effects on elemental abundances. In my presentation, I will begin by briefly revisiting the known s-process elements Strontium (Sr) (Bergemann et al., 2012; Gallagher et al., in prep) and Barium (Ba) (Gallagher et al., 2020), as well as discussing the effects of NLTE and 3D on them.

The highlight of this talk will be the introduction of findings from 1D NLTE and 3D NLTE models for Yttrium (Y) (Storm & Bergemann, subm.) and Europium (Eu) (Guo et al. (incl. Storm), in prep). These results, derived using state-of-the-art 3D radiative transfer modeling using code MULTI3D and the most recent nuclear data, will give insight on the implications of NLTE and 3D effects on classification and abundance determination of neutron-capture elements.

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