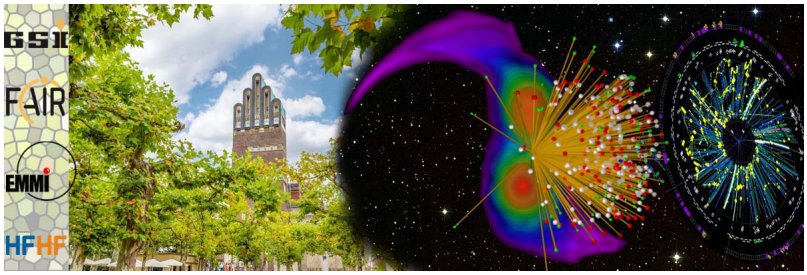

Contribution ID: **7** Type: **Oral**

What If the Nuclear Symmetry Energy is Larger than Expected?

Wednesday, 20 September 2023 12:30 (20 minutes)

Here we provide experimental evidence for an increasing nuclear symmetry energy for nuclei at temperatures typically found in neutron mergers and collapsars, which may lead to the close in of the nuclear chart (or neutron dripline) at the limits of stability, and constrain the paths of various r-process nucleosynthesis mechanisms; hence, supporting the universal pattern of abundances for heavy elements with $56 < Z < 90$ found in our sun, extremely metal poor stars and meteorites. We believe that this is a ground breaking discovery arising from the classical study of giant dipole resonances built on the excited states of nuclei. More work is crucially needed, but our conclusion is supported by theory and astronomical findings.

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Session Classification: Nuclear structure, short-range correlations and direct reactions

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