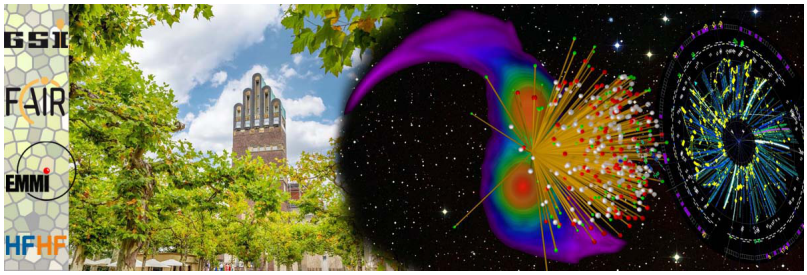

Contribution ID: **25** Type: **Oral**

Toward a quantitative evaluation of the nuclear equation of state

Thursday, 21 September 2023 12:00 (25 minutes)

This contribution concerns the characterization of the nuclear equation of state (EOS) evaluated from ground state properties of nuclei, i.e. from nuclear masses, charge radii and neutron thickness. By using a Thomas-Fermi framework combined with a specific Seyler-Blanchard nucleon-nucleon interaction containing both non-local and density terms, I will show that quantitative information about the EOS empirical parameters can be deduced. Specifically, the density dependence of the isovector part of the EOS (symmetry energy) is here estimated and discussed. The results are also successfully compared to a non-parametric regression (gaussian process) trained on experimental evaluations. Hence, these results provide a brand new set of quantitative constraints for the nuclear EOS by taking into account both experimental and theoretical inputs.

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Session Classification: Combined analysis of nuclear and astrophysics information, Bayesian approach, and machine learning

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