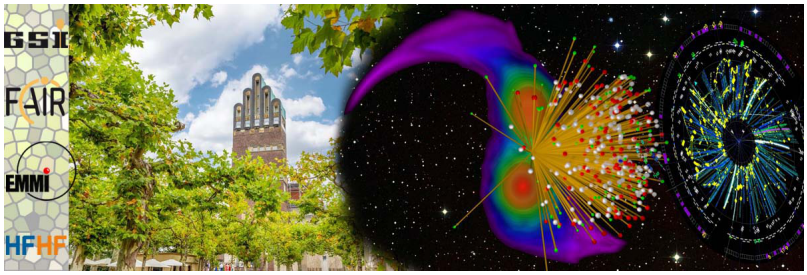

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Constraining the nuclear equation of state using Coulomb excitation of neutron-rich tin isotopes

Wednesday, 20 September 2023 12:10 (20 minutes)

An experiment measuring the Coulomb-excitation cross section, σC [1] in neutron-rich tin nuclei (124 Sn– 134 Sn) at relativistic energies was performed at GSI, Darmstadt with the aim to constrain the slope of the symmetry energy, L. This particular cross section correlates with dipole polarizability, α D , a well-established observable for constraining L [2], which enables achieving the same goal but in a simpler and more accurate manner with the used experimental setup [3].
Large acceptance spectrometer R3B-GLAD was used to conduct the experiment as a part of the FAIR Phase-0 campaign [4]. Neutron-rich tin isotopes were produced in fragmentation and fission reactions at energies close to 1 GeV/u, while a lead target was used to provide a strong field to induce Coulomb excitations. At these energies, de-excitation occurs through the emission of gammas and neutrons which were detected using the CALIFA gamma calorimeter [5] and NeuLAND neutron detector [6].
In the scope of this contribution, ongoing analysis with some preliminary results will be presented.

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