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Energy Density Functionals for nuclei and astrophysical applications

Content

Nuclear Density Functional Theory (DFT) is the microscopic nuclear model with the broadest range of applicability: it can be used to predict ground-state properties, like masses, radii, or intrinsic deformations, but it can also be applied to nuclear spectroscopy. The use of DFT for excited states, like Giant Resonances, will be emphasised in this talk.

At the same time, several ways to parameterise an Energy Density Functional (EDF) exist, and the path towards a “universal” EDF looks somehow unclear. In this contribution, results of different Bayesian inferences of the Skyrme parameters will be shown and analysed. The connection with astrophysical applications will be highlighted.

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