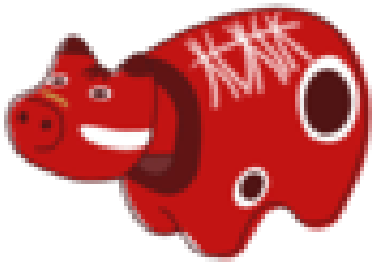

Contribution ID: **60** Type: **not specified**

Statistical analysis of nuclear low-lying states and double-beta decay with a covariant energy density functional

Wednesday, 5 March 2025 15:28 (1 minute)

We present a statistical analysis of nuclear low-lying states within the framework of multireference covariant density functional theory (MR-CDFT) using a relativistic point-coupling energy density functional (EDF). This study is made possible by the newly developed subspace-projected (SP)-CDFT, where the wave functions of nuclear low-lying states for target EDF parameter sets are expanded in a subspace spanned by the wave functions of low-lying states from training parameter sets. We analyze the global sensitivity of excitation energies, electric quadrupole transition strengths, and the nuclear matrix element of neutrinoless double-beta decay in ^{150}Sm and ^{150}Nd to EDF parameters, and explore the correlations between these quantities and nuclear matter properties. Furthermore, we quantify the statistical uncertainty of low-lying states through their posterior distributions.

Type of contribution

poster

Are you a student or postdoc?

yes

Primary author: ZHANG, Xin (Kyoto University)

Co-authors: Prof. YAO, Jiangming (Sun Yat-Sen University); Ms DING, Chenrong (Sun Yat-Sen University); Dr WANG, Chencan (Sun Yat-Sen University)

Presenter: ZHANG, Xin (Kyoto University)

Session Classification: Poster session