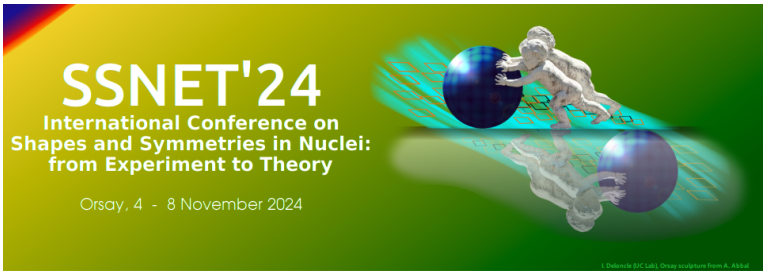

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Nuclear chiral rotation within Relativistic Configuration-interaction Density functional theory

vendredi 8 novembre 2024 14:40 (20 minutes)

The Relativistic Configuration-interaction Density functional (ReCD) theory that combines the advantages of large-scale configuration-interaction shell model and relativistic density functional theory is extended to study nuclear chiral rotation. The energy spectra and transition probabilities of the chiral doublet bands are reproduced satisfactorily without any free parameters. By analyzing the probability amplitudes of the wavefunctions, the significant roles of configuration mixing and four quasiparticle states to the chiral doublets are revealed. The evolution from chiral vibration to static chirality is clearly illustrated by the K plot and azimuthal plot. The investigation provides both microscopic and quantal descriptions for nuclear chirality for the first time and demonstrates the robustness of chiral geometry against the configuration mixing as well as the four quasiparticle states.

Author: WANG, Yakun (Peking University, China)

Orateur: WANG, Yakun (Peking University, China)

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