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QCD-based charge independence breaking energy density functional

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QCD sum rule approach is a powerful tool to implement QCD dynamics into hadron and nuclear many-body physics even for finite density.

We applied the QCD sum rule approach to derive a nuclear charge symmetry breaking (CSB) energy density functional (EDF), which describes the Okamoto-Nolen-Shiffer anomaly successfully.

As the next step, we propose an approach to derive the charge independence breaking (CIB) EDF from the low-energy constants of the chiral Lagrangian.

We also apply the derived CSB and CIB EDFs to nuclear structure calculation.

session

I. Nuclear Structure and Reactions

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