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Theoretical perspectives of exotic nuclei

Depending on the mass regions, different predictive theories are employed to explore the properties of exotic systems such as superheavy nuclei and nuclei away from the \beta stability line. Mainly, ab initio theories are applied for relatively lighter nuclei, whereas nuclear energy density functional-based self-consistent theories are the most promising tool for heavy and superheavy nuclei. In the case of light neutron-rich systems, I will present crucial predictions from the chiral effective field theories. Then, emphasis will be given to the applications of energy density functional-based approaches. Implications to nuclear astrophysics and superheavy element research will be elaborated. Possible future perspectives will also be discussed.

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