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【356】Density-functional theory description of xenon for light dark matter direct detection

Friday 8 September 2023 13:15 (15 minutes)

We present a detailed density functional theory (DFT) study of the electronic structure of atomic and liquid xenon, as a first step in quantifying the event rates in operating xenon-based detectors based on dark matter (DM) - electron scattering. Our main goal is to determine whether explicit modelling of the inter-atomic interactions in the liquid state changes the predicted event rates compared with current state-of-the-art models based on isolated Xe atoms.

Theoretical Work

Theory

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