Frontiers in understanding matter at the extremes\textsuperscript{1}

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I will discuss current frontiers in understanding and predicting the structure of strongly-interacting matter in laboratory nuclei and in the cosmos. These include the development of effective field theory and renormalization group methods in nuclear physics, the advances of ab-initio approaches for nuclear structure, and the effort to develop a universal nuclear energy density functional based on microscopic interactions. Three-nucleon forces play a central role in these developments.

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