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Nuclear isoscaling and fair sampling

JORGE LOPEZ, University of Texas at El Paso

The isoscaling phenomenon was first observed in nuclear multifragmentation experiments and has become a hot topic as it could provide a probe of the nuclear equation of state to understand nuclear matter at extreme condition of isospin such as in neutron stars. The present work studies isoscaling using 1) classical molecular dynamics simulations, 2) percolation and 3) probabilistic arguments, and determines that isoscaling is a general phenomenon that can exist independent of the nuclear reaction, and it is expected to occur in disassemblying systems with no more than fair sampling. In collaboration with Alan Davila, University of Texas at Austin; Claudio Dorso, Universidad de Buenos Aires; Carlos Hernandez, Universidad de Colima; Christian Escudero, University of Texas at El Paso; and Jorge Muñoz, CalTech.