

QCD Phase Diagrams with Charge and Isospin Axes under Heavy-Ion Collision and Stellar Conditions

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We investigate the phase transition from hadron to quark matter in the general case without the assumption of chemical equilibrium. The effects of net strangeness on charge and isospin fractions, chemical potentials, and temperature are studied in the context of the Chiral Mean Field (CMF) model that incorporates chiral symmetry restoration and deconfinement. The extent to which these quantities are probed during deconfinement in conditions expected to exist in proton-neutron stars, binary neutron-star mergers, and heavy-ion collisions is analyzed via the construction of 3-dimensional phase diagrams.

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