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Higher-Order Isospin Asymmetric Nuclear Matter Expansion for Pressure, Binding Energy and Chemical Potential

By using a nonrelativistic limit based at point-coupling versions of finite range nuclear relativistic mean-field models containing cubic and quartic self interactions in the scalar field, we derive the analytical expressions for pressure, chemical potential and energy per particle expanded up to sixth-order in isospin asymmetry parameter. In the expansion, the thermodynamic consistency afforded by the Hugenholtz-van-Hove theorem is achieved. This expansion may be of importance for asymmetric nuclear matter at high densities. Collaboration with M. Dutra, O. Lourenco and A. Delfino.

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