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Nuclear Incompressibility and Nuclear Symmetry Energy Calculated Using M3Y-type Interaction Derived from Variational Calculation.

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Abstract content
 (Max 300 words)

A generalized version of density dependence has been introduced into an M3Y-type effective nucleon-nucleon (NN) interaction that was derived from Variational calculation using the Reid NN potential. The density dependent parameters have been chosen to reproduce the saturation binding energy and density of normal nuclear matter in standard Hartree-Fock scheme as well as to generate different equations of state starting from a very soft one, $K_0 = 181.3$ MeV, up to the stiff one with $K_0 = 472.5$ MeV. The description of nuclear matter from the isoscalar and isovector components of the density depend M3Y-type effective interaction provides a value of the symmetry energy that is consistent with the empirical value of the symmetry energy extracted from measured atomic mass and with other modern theoretical description of nuclear matter.

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