PROPERTIES OF NUCLEAR AND NEUTRON MATTER USING D1 GOGNY FORCE

H.M.M. Mansour, Kh.A. Ramadan, M. Hammad [1]

Physics Department, Faculty of Science,
Cairo University (*Giza, Egypt*),
[1]Physics Department, Faculty of Science,
Zagazig University (*(Benha Branch), Egypt*)

S u m m a r y

In the present work, we investigate the equation of state of hot and cold nuclear and neutron matter using the Gogny effective interaction. The binding energy per particle, symmetry energies, free energy, and pressure are calculated as a function of the density ρ, fm^{-3}, for the nuclear and neutron matter. The results are comparable with previous theoretical estimates using the Seyler—Blanchard effective interaction and the famous calculation of Friedman and Pandharipande using a realistic interaction.