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Nuclear Matter at High Density and Finite Temperature[1] ABHISHEK MUKHERJEE, GEOFF RAVENHALL, JAIME MORALES, VIJAY PANDHARIPANDE[2], University of Illinois at Urbana-Champaign — The equation of state of bulk nuclear matter is one of the most important microscopic inputs in the understanding of supernovae explosions and cooling of proto-neutron stars. This talk will describe calculations of the equation of state of nuclear matter at finite temperature based on the variational principle and correlated basis functions, and using modern realistic two body (Argonne v18) and three body (Urbana IX) nuclear forces. This work is a generalization of the Akmal-Pandharipande-Ravenhall equation of state to finite temperatures. The behavior of some other important physical quantities including the effective mass will also be discussed.

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