**Cluster Variational Calculations of the Equation of State
for Infinite Nuclear Matter** HIROAKI KANZAWA, KAZUNORI TANAKA,
MASATOSHI TAKANO, Waseda University — We report variational calculations
of the equation of state (EOS) for neutron matter and symmetric nuclear at zero temperature. We assume the Jastrow-type wave functions with spin-isospin-dependent
central, tensor and spin-orbit correlation functions. With the two-body cluster approximation, the energies per nucleon are expressed in the terms of the correlation
functions. Since the obtained saturation point of symmetric nuclear matter is not
in good agreement with the empirical one, additional three-body nuclear forces are
necessary. In this study, therefore, we evaluate the three-body potential energies
with the UrbanaIX potential, energies are determined so as to reproduce the empirical saturation point of symmetric nuclear matter. Finally, we extend the above
calculations for asymmetric nuclear matter.

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