Abstract Submitted
for the HAW09 Meeting of
The American Physical Society

Important role of three-body forces effect on nucleus-nucleus elastic scattering TAKENORI FURUMOTO, YUKINORI SAKURAGI, Department of Physics, Osaka City University, YASUO YAMAMOTO, Physics Section, Tsuru University — An analysis of nucleus-nucleus (AA) elastic scattering is made by the double-folding model (DFM) with a new complex G-matrix interactions called CEG07. The CEG07 interactions are derived from the free-space nucleon-nucleon interaction the Extended Soft Core model, including the three-body forces (TBF) contributions composed of the two parts of three-body repulsive and attractive forces. We have tested the present microscopic DFM optical potential with CEG07 in the ^{16}O + ^{16}O system at $E/A = 70$ MeV. The TBF effect is clearly seen in the cross section and the folding model potential (FMP) calculated with TBF well reproduces the experimental data up to the backward angles. The role of each part of TBR and TBA are also demonstrated in the same system. The effect of TBF is very important not only for nuclear saturation properties but also proper understanding of AA elastic scattering. Furthermore, the FMP with CEG07 was compared with one with CDM3Y6 that is one of the realiable and successful effective density-dependent NN interaction to be used in the DFM.

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Date submitted: 29 Jun 2009 Electronic form version 1.4