Abstract Submitted
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Neutron-rich nuclei from the nuclear force[1] NAOFUMI TSUNODA, Center for Nuclear Study, the University of Tokyo, TAKAHARU OTSUKA, Department of Physics and Center for Nuclear Study, the University of Tokyo, KAZUO TAKAYANAGI, Department of Physics, Sophia University, MORTEN HJORTH-JENSEN, Depart- ment of Physics and Center of Mathematics for Applications, University of Oslo, TOSHIO SUZUKI, Department of Physics, College of Humanities and Sciences, Nihon University, NORITAKA SHIMIZU, Center for Nuclear Study, the University of Tokyo — The properties of neutron-rich nuclei starting from the nuclear force with two and three-body force is presented. Recent experimental and computational development makes the neutron-rich nuclei a big frontier where the fundamental treatment is important. We aim to study neutron-rich nuclei starting from the nuclear force and the theory to derive the effective interaction not empirically but via the microscopic theory. We construct the effective interaction for the shell-model using newly developed Extended Kuo-Krenciglowa (EKK) method. The major difference from Kuo-Krenciglowa (KK) method is that EKK method can be applied to non-degenerate model space where KK method inevitably experience the divergences. In addition, we include the effects of three body force by part via the effective two-body force. With this microscopically derived nuclear force, we discuss the shell structure of neutron-rich nuclei and the role of three-body force.

[1]HPCI strategic program field 5 "The origin of matter and the universe"

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