Abstract Submitted
for the HAW14 Meeting of
The American Physical Society

Y_cNN 3-body charmed nuclei with channel coupling SAORI MAEDA, AKIRA YOKOTA, Tokyo Institute of Technology, EMIKO HIYAMA, RIKEN Nishina Center, MAKOTO OKA, Tokyo Institute of Technology, YAN-RUI LIU, Shandong University, KENJI FUKUKAWA, Catania University INFN — Binding energies of Y_cNN 3-body charmed nuclei are studied in a potential model. We take into account couplings of channels with Λ_c, Σ_c and Σ_c^* (spin 3/2). Since the mass difference between Σ_c and Σ_c^* is small, the effect of Σ_c^* coupling is important. Between a charm baryon and a nucleon, we use Y_cN-CTNN potential, which consists of One Boson Exchange potential supplemented by the short-range repulsion from the Quark Cluster Model. Coupling constants and cut-off parameters are fixed so as to be consistent with the N-N interaction. Accordingly, the CTNN potential has four versions, two of which give a bound Λ_cN ($^3S_1$) state. We also include the Coulomb interaction for the charged charmed baryon and the proton. We find a bound state in the three-body system, when we use an effective one-body potential for Λ_cN, as a preliminary calculation. We will report the results of the full three-body calculation.

Saori Maeda
Tokyo Institute of Technology

Date submitted: 25 Jun 2014 Electronic form version 1.4