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New band mechanism of doubly-odd nuclei in the medium-heavy mass region KOJI HIGASHIYAMA, Department of Physics, University of Tokyo, NAOTAKA YOSHINAGA COLLABORATION — In recent years, many experimental studies on the doubly-odd nuclei in the mass $A \sim 130$ region show two nearly degenerate $\Delta I = 1$ bands built on the unique-parity $0h_{11/2}$ valence neutron and proton orbitals. From the theoretical side, these bands were extensively investigated in terms of mean field approaches. However, there was very few theoretical study which preserves both rotational symmetry and particle number conservation of the interactions. A few studies of them have been made using a pair-truncated shell model, where the shell model basis states are restricted to the collective subspace. This approach reproduced well experimental energy spectra and electromagnetic transitions of the doublet bands. From analysis of the wave functions and transition rates, it was found that the level scheme of the doubly-odd nuclei arises from different angular momentum configurations of the unpaired neutron and the unpaired proton, weakly coupled with the quadrupole collective excitations of the even-even part of the nucleus. In this talk, the results of these calculations will be presented and discussed.

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