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Erosion of N=28 shell gap and triple shape coexistence in the vicinity of ^{44}S MASAAKI KIMURA, Department of Physics, Hokkaido University — The broken magic number N=28 in the vicinity of ^{44}S has been a topic of interest and importance addicting many experimental and theoretical studies. In particular, in the case of the Ar, S and Si isotopes, the strong quadrupole correlation amongst protons and neutrons is induced by the quenching of the N=28 shell gap and results in a variety of deformed states. In this talk, we will report our recent research results of the low-lying spectroscopy in the vicinity of ^{44}S nuclei based on the theoretical model of the antisymmetrized molecular dynamics. The focuses of the talk will be the following two; (1) Triple Shape Coexistence. The strong quadrupole correlation triggers the novel shape coexistence phenomena. Three different types of quadrupole deformation, i.e. prolate, oblate and triaxial deformed states coexist at very small excitation energy. (2) Shape Transitions of the Ground States. The deformation of the ground state changes between the oblate and prolate deformations depending on the proton numbers. The underlying shell structure and the proton-neutron correlation determine the shape of the ground state.

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