Algebraic Shell Model Description of Phase Transitions in Nuclear Systems

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We present results for the phase transition phenomenon in sd-shell nuclei from calculations performed in the symmetry-adapted basis of the Algebraic Microscopic Pairing-plus-Quadrupole Shell Model. Besides the quadrupole and the pairing (isoscalar plus isovector) interactions, the Hamiltonian also includes the single-particle terms of the studied systems. Calculations for some nuclei from the pf shell will be discussed as well. Our outcome will be compared to results obtained with other approaches.