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Nuclear structure with the algebraic collective model M.A. CAPRIO, University of Notre Dame, D.J. ROWE, T.A. WELSH, University of Toronto — A tractable scheme for numerical diagonalization of the Bohr Hamiltonian, based on $\mathrm{SU}(1,1) \times \mathrm{SO}(5)$ algebraic methods, has recently been proposed. The direct product basis obtained from an optimally chosen set of $\mathrm{SU}(1,1)$ β wave functions and the SO(5) spherical harmonics $\Psi_{v\alpha LM}(\gamma, \Omega)$ provides an exceedingly efficient basis for numerical solution, as compared to conventional diagonalization in a five-dimensional oscillator basis. In this talk, the status of the $\mathrm{SU}(1,1) \times \mathrm{SO}(5)$ algebraic collective model will be summarized and applications will be presented. In particular, the transition from axially symmetric to triaxial structures will be explored. Supported by the US DOE under grant DE-FG02-95ER-40934.

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