

# **INTERMEDIATE HAMILTONIAN RELATIVISTIC MULTIREFERENCE COUPLED CLUSTER METHODS: THEORY AND APPLICATIONS**

Ephraim Eliav, Arie Landau and Uzi Kaldor  
School of Chemistry, Tel Aviv University, 69978 Tel Aviv, Israel

Newly developed relativistic multireference Coupled Cluster (CC) schemes based on Intermediate Hamiltonian formulation are presented. This formulation widely extends possibilities of the traditional Fock-space and Hilbert-Space CC approaches.

High-precision calculations of some heavy and super-heavy atomic and molecular systems are presented. A detailed study of the influence of nonadditive effects of relativity and electron correlation on atomic and molecular properties is provided.