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Abstract : In physical systems there exist three major symmetries, permutation group symmetry of identical particles, point group symmetry of ions and space group symmetry of crystals. Although a good deal of information is available related to the application of unitary group in physics, but they are restricted by difficult mathematics. Present work focuses on the use of permutation and unitary group techniques in the derivation of wave functions for a system having two electrons in the valence f-shell. Slater determinantal, permutation and unitary group procedures have been developed to calculate these wave functions. An isomorphism between permutation group and Icosahedral point group has been defined. After introducing the crystal field theory, A unitary group approach has been presented for the study of strong Icosahedral crystal fields

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