

THE $4^3\Delta_g$ STATE IN K_2 - INVESTIGATING A POSSIBLE GATEWAY TO CORE NON-PENETRATING RYDBERG STATES

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Core non-penetrating Rydberg states can give useful information on the electronic structure of the ion core; however, core non-penetrating states are difficult to observe since these states hardly penetrate the more accessible ion core and the electronic angular momentum quantum number, l , is large, for the core non-penetrating states thus the transition dipole moment to the core non-penetrating states is small. The core penetrating $4^3\Delta_g$ state (atomic limit: $4s+5d$) and the core non-penetrating $3^3\Delta_g$ state (atomic limit: $4s+4f$) perturb each other since they have the same symmetry and overlapping energy states thus creating the possibility of a gateway to other core non-penetrating states.