

Term Symbols in Strong Field Limit

In Class Activity

- determine the term symbols for the $(e_g)^2$ configuration, draw out the 6 possible microstates for this configuration and identify the multiplicity of each state
- determine the state term symbols from taking the direct product of the orbitals occupied

$$(e_{2g})^2 = E_g \otimes E_g = A_{1g} + A_{2g} + E_g$$

- the multiplicities associated with each state cannot be determined just from the direct product, however

$$(e_{2g})^2 = E_g \otimes E_g = {}^1A_{1g} + {}^3A_{2g} + {}^1E_g$$

- working out the individual states and their spin/multiplicity:

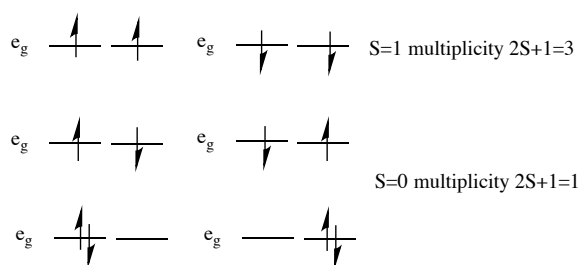


Figure 1 diagram of possible microstates for $(e_{2g})^2$