

Hund rules

1. Of the different multiplets resulting from different configurations of electrons in degenerate orbitals of an atom those with greatest multiplicity have the lowest energy (multiplicity rule).
2. Among multiplets having the same multiplicity, the lowest-energy one is that with the largest total orbital angular momentum (angular momentum rule) (valid if the total orbital angular momentum is a constant of motion).
3. In configurations containing shells less than half full of electrons, the term having the lowest total angular momentum J lies lowest in energy, whereas in those with shells more than half filled, the term having the largest value of J lies lowest (fine structure rule). Hund rules apply if the 'Russell–Saunders' coupling scheme is valid. Sometimes the first rule is applied with questionable validity to molecules.

Source:

PAC, 1996, 68, 2223 (*Glossary of terms used in photochemistry (IUPAC Recommendations 1996)*) on page 2246