

Answer on Question #55174 - Chemistry - General chemistry

Question:

The term symbol for the groundstate of the N_2^+ ion is $^2\Sigma g$. What is the total spin angular momentum of the molecule? Show that the term symbol agrees with the electron configuration that would be predicted by using the build - up principle.

Answer:

- $2S+1=2$

$$S=1/2$$

- Σ means, that the orbital angular momentum around the molecular axis is zero.
- g means that the resulting wave function is unchanged

We predict the configuration $N_2 : 1\sigma^2 2\sigma^{2*} 1\pi^4 3\sigma^1$

which is in accord with the term symbol since $^2\Sigma g$ is an even function and all lower energy orbitals are filled, leaving one unpaired electron, thus $S = 1/2$