

Warm-up question 1

Knowing that the nuclear magic numbers are 8, 20, 28, 50 and 82, judge the following statements:

- A) The spin-parity of the ${}^{16}_8\text{O}$ nucleus is $J^P = 0^+$.
- B) The parity of the ${}^{15}_7\text{Ni}$ nucleus is even (+1).
- C) The neutron absorption cross section of ${}^{86}_{36}\text{Kr}$ is higher than the one of ${}^{85}_{36}\text{Kr}$.
- D) The proton separation energy of ${}^{120}_{50}\text{Sn}$ is higher than the one of ${}^{120}_{51}\text{Sn}$.
- E) The proton separation energy of ${}^{120}_{50}\text{Sn}$ is higher than the one of ${}^{122}_{50}\text{Sn}$.