

Answer on Question #53307 – Chemistry – Inorganic Chemistry

Question:

Why does fluorine always have negative charge while other halogen do not always show negative charge? They become positive some times.

Answer:

Fluorine always has negative charge because the fluorine has the highest Electronegativity of 3.98 (Pauling units), and another halogens have: 3.16 (Chlorine), 2.96 (Bromine), 2.66 (Iodine).

This is conditioned by the formation of very stable $1s^2 2s^2 2p^6$ electronic configuration for F^- , which is more stable than those for other halogens. Also p-orbital ($2p^5$ F) being very close to the nuclei has high ionization energy of 1600 kJ/mol which is close to that for Argon. There is no element which could take an electron from F atom.