

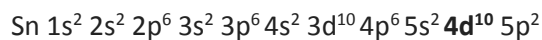
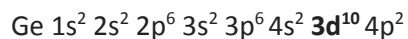
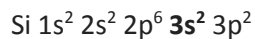
Answer on Question #53676 – Chemistry – Inorganic Chemistry

Question:

Electronegativity of Ge is higher than that of Si and Sn. Explain.

Answer:

It can be explained by the shielding effect of d-electrons. Shielding effect is conditioned by filled electronic shells and results in lower attraction to nuclei of electrons from outermost shell. For s- and p-orbitals this effect is stronger than for d and f – orbitals due to their shapes (electron density in space), since s and p – shells are more spherical. Considering their electronic configurations it is clear that the outermost electrons are more shielded for Si than for Ge and Sn:



At the same time an increase in atomic radius for Sn leads to the decrease in the ionization energy, therefore its electronegativity is lower than for Ge, which has smaller radius.