6. Find the velocity of a photoelectron liberated by electromagnetic radiation of wavelength $\lambda = 18.0$ nm from a stationary $He^+$ ion in the ground state.


7. Using the uncertainty principle, estimate the uncertainty in the velocity of the electron in a hydrogen atom if the size of the atom is 0.1 nm. Compare the obtained value with the velocity of the electron in the first Bohr orbit of the atom.


8. At what value of kinetic energy does the electron's de Broglie wavelength equal its Compton wavelength? Express the result in terms of the electron's rest energy.