#6.3)

A negative μ-meson with rest energy $m(\mu)c^2 = 105.658$ MeV can act as a heavy electron and bind to a proton to form a muonic atom. Calculate the ionization energy of the muonic atom from its ground state. You may ignore the reduced mass effect.

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#6.4) The Bohr formula for wavelength also applies to higher "Z" nuclei with all but one electron removed. For a carbon nucleus with $Z = 6$.

[A]. Find the lowest energy level for which $n = 1$.

[B]. Find its radius of the one electron atom with the electron in this level.

[C]. Find the wavelength of a photon for a transition between the $n' = 2$ and $n = 1$ levels.