Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Revisiting the Bohr Atom 100 Years Later ERNST WALL, Institute for Basic Research, Palm Harbor, FL — We use a novel electron model wherein the electron is modeled as a point charge behaving as a trapped photon revolving in a Compton wavelength orbit at light speed. The revolving point charge gives rise to spiraling Compton wavelets around the electron, which give rise to de Broglie waves. When applied to the Bohr model, the orbital radius of the electron scales to the first Bohr orbit's radius via the fine structure constant. The orbiting electron's orbital velocity, Vb, scales to that of the electron's charge's internal velocity (the velocity of light, c) via the fine structure constant. The Compton wavelets, if they reflect off the nucleus, have a round trip time just long enough to allow the electron to move one of its diameters in distance in the first Bohr orbit. The ratio of the electron's rotational frequency, fe, to its rotational frequency in the Bohr orbit fb, is fe/fb = $1/\alpha^2$, which is also the number of electron rotations in single orbit. If we scale the electron's rotational energy (h*fe) to that of the orbit using this, the orbital energy value (h*fb) would be 27.2114 eV. However, the virial theorem reduces it to 13.6057, the ground state energy of the first Bohr orbit. Ref: www.tachyonmodel.com.

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Date submitted: 15 Nov 2012 Electronic form version 1.4