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A Newtonian Model of the Hydrogen Atom JAMES ESPINOSA[1], Rhodes College, JAMES WOODYARD, West Texas State University — Classical physics was deemed useless in atomic physics in the early 1900's by the vast majority of the physics community. There were multiple problems that were believed to be insoluble, such as blackbody radiation and the photoelectric and Compton effects. Another outstanding problem had been the explanation of atomic spectra. By the 1920's, a very powerful theory called quantum mechanics was created which explained all atomic experiments. Nevertheless, a few physicists, most notably Albert Einstein, rejected this theory on the grounds that it did not give a complete description of the microscopic world. Another more radical view held by Walter Ritz is that Newtonian physics is applicable to all of atomic physics. Over the last couple of years, we have presented classical explanations of many of the "insoluble" problems given by textbooks. We will present a model of the hydrogen atom that stays within the framework of Newton. Using only the assumption that the stable building blocks of matter are the electron, positron, and neutrino, we will deduce the following results from our model: orbital stability, line spectra, and scattering cross sections for electrons and protons. We will also qualitatively demonstrate how to explain the lifetime of excited states.

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