

Abstract Submitted
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A Newtonian Description of the Linear Stark Effect JAMES WOODYARD, West Texas A&M University, JAMES ESPINOSA¹, Rhodes College — After the discovery of the magnetic effect on spectral lines by Zeeman, it was only natural that physicists should look for a similar effect when an electric field was applied. A nonlinear model of the hydrogen atom developed by Woldemar Voigt was investigated and predicted a second order effect that would require huge electric fields in the ten of millions of volts per centimeter. Fortunately, Johannes Stark ignored this ominous prediction by a leading theoretician and discovered a linear electric effect that would quickly be named after himself. Soon after Bohr introduced his quantum theory of the Hydrogen Atom, Schwarzschild and Epstein independently utilized Sommerfeld's extension of Bohr's theory to arrive at an empirically correct formula. We will show how our classical theory of the hydrogen atom can account for the linear Stark effect.

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