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Mathematics Dept., Hill Center, Piscataway, NJ 08854. *General-relativistic hydrogenic  
atoms*. Preliminary report.

We identify the nucleus of a single-electron ion (hydrogenic atom) with the central singularity of a static, spherically symmetric electrovacuum spacetime. We consider spacetimes that are singular on a timelike line (representing the world line of the nucleus), every point of which is a conical singularity for the metric. One such spacetime is Hoffmann's, where the electromagnetic vacuum law is that of Born-Infeld. The single electron is treated as a test particle whose equation of motion is the one-body Dirac equation. We analyze the spectrum of the pertinent Hamiltonian and compare it to other models, such as the Dirac equation on Minkowski space with the Coulomb potential and the Dirac equation on naked Reissner-Nordstrom spacetime. (Received February 20, 2018)