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# Against Point Charges

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**Abstract**

A new theory proposed by Dr. Randell Mills reproduces and surpasses the predictions of quantum mechanics and is incompatible with the current theory. A key point of departure is whether the electron is a point particle or if it extends into some shape. It is possible to choose between the two theories based on whether point or extended charges are consistent with known laws and observations.

**Keywords:** point charge, hydrino, black hole, GUT, Hawking radiation, classical physics

## 1. Introduction

Mills' Grand Unified Theory of Classical Physics (Mills, 2014) starts from Maxwell's Equations and Newton's Laws and solves for the source current distribution of the bound electron of hydrogen as a distribution producing no radiation. Once the physical structure of the electron is known, atomic spectral lines are calculated with remarkable agreement to measured values. This feat is repeated with molecular bond energies, a task presently out of reach of quantum mechanical capability – see (Mills, Holverstott, Good, & Makwana, 2011). Finally, fundamental particle masses are computed, another clear advance over the current state of the art. In light of these successes of the new theory, we will investigate whether the model of the electron and other charged particles as point particles is possible. A prediction of Mills' theory is the existence of states of hydrogen below the "ground" state: the n = 1 state is only the highest state that is stable to spontaneously emitting radiation, and the lower states may be reached by non-radiative energy transfers. An atom in one of these lower energy states is called a hydrino in the theory. That the n = 1 ground state is the lowest energy level in hydrogen is an absolute definition in quantum mechanics, so experimental observation of the hydrino states would falsify quantum mechanics.

## 2. Empirical Support

A number of papers have reported empirical support for Mills' theory. In (Mills, Lotoski, Good, & He, 2014), it is stated that "the predicted molecular hydrino $H_2(1/4)$ was identified … by MAS $^1H$ NMR, ToF-SIMS, ESI-ToFMS, electron-beam excitation emission spectroscopy, Raman spectroscopy, photoluminescence emission spectroscopy, FTIR, and XPS", citing (Mills et al., 2013) and (Mills et al., 2014). For instance, in (Mills, Lotoski, Good, & He, 2014), a Raman peak matching the free rotor energy of molecular hydrino $H_2(1/4)$ has been observed in the products of a reaction that produces hydrinos according to Mills' theory. Also, using differential scanning calorimetry and water flow calorimetry, more heat energy is produced from hydrino-producing reactions than is theoretically possible without the hydrino mechanism. The differential scanning calorimetry results were independently replicated at Setaram and Perkin Elmer facilities. These results, if they can be widely replicated, falsify quantum mechanics. However, attempts at replication have not been reported. It may be that a philosophical attachment to the old theory prevents serious consideration of the new. In that case, a philosophical argument for Mills' theory and against quantum mechanics is needed to enable the indispensable work of replication to confirm or deny these promising results. We will present such an argument.

## 3. Proof

A point charge is a point mass.

A point mass is a black hole.

A black hole does not radiate.

An electron radiates.

Therefore an electron is not a point charge.

## 4. Justification

It remains to justify some of these statements. The first merely supposes that the same matter that carries the charge carries the mass. Therefore the mass and the charge exist in the same place, and if one is a point so is the other. The second statement can be seen by considering that every amount of mass has its Schwartzchild radius. If all the mass exists within that radius, the object is a black hole. Since the object is a point with nonzero mass, the Schwartzchild radius of that mass is nonzero, and the whole object necessarily exists within the radius. So, a point mass is a black hole. The third statement has the exception, perhaps, of Hawking radiation. However, Hawking radiation is insufficient to be the source of such phenomena as spectral lines or synchrotron radiation which electrons exhibit. In any case it is evident that electrons do not decay through Hawking radiation.

## 5. Conclusion

We have argued that charges in nature are extended rather than point charges.

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