# Model illustrating Electron duality through the lens of Classical Mechanics

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## Preface

This work sets forth a model which is speculative in nature, there being no verifying experiments. I wrote this piece with hopes of providing a renewed outlook on electron duality.

While my background in physics is deficient, I urge readers of this work to not dismiss the approach merely for my individual shortcomings.

***Like all academic physicists of the prior century, I was taught that electrons exhibit dualistic nature. They flaunt a unique, puzzling marker that grants it authority to self-identify among our discrete characterizations of natural phenomena. Not only was I taught this but instead guided to tolerate it. Rather candidly, I find it difficult to accept this without first endeavoring to position it within the peripheries of classical mechanics.***

***Having said that, allow me to submit a model...***

***Consider a single delocalized electron as it traverses the fabric of space in a random erratic manner. This singular, desolate electron shall possess no marker of the wave nature for the sake of our model. As it traverses, its behavior is very much similar to that of a lonesome particle, for it is just that - a particle. It shares much of the same properties, so we shall label it as such. Keep in mind that this electron would travel at extremely high velocities due to its low mass.***

***Now regard a second electron boosting an identical set of attributes and position this electron such that both electrons would be within near proximity to each other. Recall once again that both electrons would be traveling at exceptionally high velocities, and they would therefore experience an increase in relativistic mass as a consequence.***

***Newton's Universal Law of Gravitation states that two bodies of mass would attract each other. Therefore, since this law functions on all forms of mass and energy and thus on all subatomic particles, there's validity in claiming these two electrons would experience a force that would bring them closer. Now, as these two electrons come towards each other, recall that there is also a force that would repel them away (due to them possessing the same charge).***

***The electrons would now be stuck in a trance where they would attract and then repel. Now, you might wonder why they wouldn't just compromise on a fixed distance whereby the repulsion and attractions would negate the other. The reason for this can be justified.***

***Since the electrons attract each other, there would be a resultant force that would accelerate the electrons towards one another, increasing the mass again. This would continue until both electrons were so close to each other such that the magnitude of the repulsive forces would now be greater than that of the attractive forces. This is due to repulsive forces increasing as like charges come closer. There is a resultant force in the opposite direction. Therefore, the electrons would decelerate (lowering velocity, thus losing mass and attraction) until they travel in the opposite direction and are now accelerated (note that the magnitude of repulsion would decrease with time due to the electrons being further away). This would reduce acceleration, but note that velocity would still slowly increase. This causes the mass and attraction to increase, yet the repulsion force's magnitude would decrease (greater distance). This permits the attraction force to once again be predominant. The cycle would repeat.***

***The two forces complement each other quite well since the repulsion would increase velocity (albeit in the opposite direction) while reducing in magnitude, increasing mass, and causing an attraction.***

***This trance would lead to a behavior where both electrons would attract and repel, reducing and increasing the distance between them. A simple analogy to picture this would be considering the simulation of compressions and rarefactions in longitudinal wave***

***A consequence of the electrons behaving in such a way would make the beam of electrons possess behavior similar to that of a conventional wave.***

***This brings me to the end of my model.***

***This theory hinges upon the idea that the attraction between electrons would increase as their respective velocities increase. I justify this idea through the notion that Newton's law functions on all forms of mass and energy, and since energy and mass increase with speed, it isn't too far-fetched to assume attraction would also increase.***

***While it's pretty simple to understand, I found it difficult to visualize, so I'd advise giving it another read-through if you encountered the same hardships I did.***