

**Report on the Evaluation
of Appendix II
Stability and Absence of Self-Interaction
and Self Energy
in
“The Grand Unified Theory of
Classical Physics”
by Dr. Randell L. Mills**

Prepared by

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September 7, 2021

Executive Summary

In my analysis, I verified calculations and equations involving the stability and absence of self-interaction and self-energy found in Appendix II of the book “The Grand Unified Theory of Classical Physics” (January 2020 edition) by Dr. Randell L. Mills. Quantum Mechanics involves self-energy terms whereas Dr. Mills’ theory does not. This makes quantum mechanics an incomplete theory.

There is a remarkable agreement between the equations found in the chapter and the equations I get from my calculations. I verified that all the equations found in the chapter from Equation (1) through Equation (57) are in fact true.

Purpose

Appendix II shows that Quantum Mechanics still abounds with problems of self-energy and self-interaction. The self-energy in quantum mechanics can be infinite, as seen by putting $r \rightarrow 0$ in Equation (56) at the end of this Appendix.

From the Mills theory, Equation (57) matches the experimental binding energy of the hydrogen atom. By contrast, the corresponding energy doesn’t match in the case of the solutions to the Schrödinger Equation. You see – the energy stored in the electric field of the electron doesn’t match the binding energy since the average radius of the electron in the hydrogen atom is $3/2$ the Bohr radius due to the electron cloud from Quantum Mechanics. The Mills theory, though, has no need of this self-energy.

Also, Quantum Mechanics doesn’t provide for the stability of matter. In fact, it includes instability to radiation. Dr. Mills finds the textbook argument for stability based on the Heisenberg Uncertainty Principle to be false.

In contrast to Quantum Mechanics, the Mills theory’s 2-dimensional atomic orbital is stable to radiation as shown in Appendix I. This stable energy state can be altered by a resonant collision or the absorption of a resonant photon to form an excited state. But other than those, non-resonant collisions and photons can’t change the energy state. Plus, no states can exist between the resonant states. Molecular orbitals are found to be stable to perturbations that don’t change the state, as well, as given in Chapter 11.

The current of the Mills atomic orbital is confined to a 2-dimensional shell. There, the current is orthogonal to the radial vector, and there can be no self-interaction. Furthermore, there is no electrostatic self-energy and no magnetic self-energy for the bound electron, according to Maxwell’s equations.

Appendix II also shows that there is no self-interaction for the free electron, and the argument is based on Figures AII.1 and AII.2. It is shown that in the case of a 2-dimensional layer of charge, there can be no self-force since there is no self-charge for this field to act on. By contrast, in Quantum Mechanics, the electron cloud is unstable since the electron spread over all space must interact with itself via Gauss' Law.

This appendix also derives conditions for the absence or presence of a self-force by using Coulomb's Law, based on the electric force of a spherical shell of charge on a test charge q , as shown in Figure AII.4. An additional self-interaction shows up when the spherical layer of point charges possess thickness. But in the case of the Mills 2-dimensional atomic orbital, which possesses no thickness, there can be no self-interaction.

Calculations

I have verified that Equation (1) and its value is correct.

I have also verified that Equations (2)-(9) are correct.

I have shown that Equation (10) is correct. And I have shown that the value for Q after Equation (10) is correct. And the value for σ after Equation (10) is also correct.

I have shown that Equations (11)-(18) are correct as written.

Next, I have verified that Equations (19)-(21) are right.

Likewise, I have shown that Equations (23)-(28) are correct.

Equations (29)-(36) have also been shown to be correct.

I have shown that Equations (37)-(46) are correct.

And I have shown that Equations (47)-(56) are correct as written.

Lastly, I have shown that Equation (57) and its value are correct as listed.

Conclusion

I was able to verify the results of Appendix II in excellent agreement with my own calculations and derivations of equations. I successfully reproduced all of the equations, derivations, and calculations found in Appendix II, up through Equation (57).

This appendix concerned itself with the stability and absence of self-interaction and self-energy in Dr. Mills' theory compared to Quantum Mechanics. I find my results and calculations to be confirmation that the derivations and equations of Appendix II are indeed valid, reproducible, and accurate.