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### The fine-structure constant and the fluid boundary of reality

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Starting from a quantized non-viscous fluid, whose internal boundaries are coded in full by seven parameters, we show that not only do we precisely reproduce all the constants of Nature as direct derivatives of those parameters, we also automatically get the expectations of quantum mechanics in full. That is, given some real configuration of particles (of the sort we find in Nature), all quantum mechanical behaviors are exactly programmed in by the substrate!

Then, by nesting the four well-normed division algebras we produce a simultaneous layered representation of reality's different scales, allowing different operative expectations in different regions. With the normed division algebras hierarchical representing the symmetry based expressions of the fluid, we then follow Cohl Furey, and show that this construction inherently contains 24 intersection centers, which are assigned three values each—in a way that identically matches the assignments of charge, spin, and color we find in the 12 particles and 12 anti-particles of matter in our universe. Leaving only the assignment of 12 fundamental mass values out of the picture.

As a consequence of this fluid description, we derive the value of the fine structure constant as the geometric expression of an ideal quantum vortex. Getting a value that is within two sigma of the current best measure of what Richard Feynman called, "a magic number, that comes to us with no understanding by man." We also discover that the limits of physical measure, the five Planck constants, are indeed connected, and we elucidate two such connections—the second of which exposes those constants as components of the base code of realtiy, whose union is none other than the most useful base of mathematics—e, Euler's number.

#### Biography

Thad Roberts studied physics, philosophy, geology, anthropology at the University of Utah, where he continued on first with theoretical physics, and then philosophy of physics. He is the author of Einstein's Intuition, which offers an exploration of the biggest questions in physics with vivid clarity. Formally he worked for NASA, and is also known as the subject of Mezrich's book, Sex on the moon. Thad now works primarily with the Vortex Institute centered out of Switzerland, and the Quantum Space Theory Institute in the United States. His upcoming book "A Perfect Universe: A God's Manul" is on the topic of this paper.

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