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(POS-45) Hydrogenic entanglement as a test for ER = EPR

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The ER = EPR conjecture states that entangled particles are connected by microscopic worm holes. We look at some potential consequences of this "worm-hole-mediated entanglement." In particular, we see how they ought to affect the spectra of some well-known quantum systems in physics, such as the Hydrogen atom. Since the effects are significant but not observed experimentally, we are lead to believe that ER might not be EPR. We also suggest some experiments that could possibly be realized in the near future in order to strengthen our conclusion. At the end, we present some of our assumptions (like an electron is a point particle) as likely caveats to our approach.

Keyword-1

ER = EPR

Keyword-2

Entanglement entropy

Keyword-3

Hydrogen atom

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