Abstract Submitted
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Fissile O.U.T. (Optimal Uranium Technology): A Conceptual Analysis[1] REXX THOMAS, Portland State University — Nuclear energy, while exceedingly dense, has two primary issues that prevent it from being widely accepted and utilized: 1) the waste from nuclear energy can persist for generations; and 2) errors can be catastrophic. A conceptual analysis is presented that addresses both of these issues. Fissile O.U.T. is designed to run on Uranium-238 (U-238). The significance of this is that U-238 is abundant, can be sourced from nuclear waste, and it does not sustain a chain reaction which limits the probability of severe core failure. Additionally, the core design combines atomic physics with the quantum wave/particle duality of nature in order to direct the neutrons to specific locations in the core that house small pockets of more energy dense fuel. Rather than the standard model of utilizing steam to convert thermal energy to mechanical energy, Fissile O.U.T. utilizes pressurization of gas into a solid for energy storage rather than batteries. Development and implementation could offer safer nuclear energy production while reducing current levels of nuclear waste.

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