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RELATIVISTIC COMPARISON OF PARTICLE WAVE MOVEMENT TO ORBITAL MECHANICS: HARMONIC ORBITING FOR GENERATING 1G INERTIA IN A SPACECRAFT

Abstract

This paper investigates the potential utilization of the de Broglie hypothesis, which posits wave-like attributes for particles, in the domain of generating artificial gravity for spacecraft. By exploring the interplay between particle behavior and the orbital dynamics to the extent to which harmonic orbiting can yield an inertia equivalent to 1g. Various natural phenomena, such as the vibrations of the periodic motion exhibit harmonic characteristics. Through an analysis of potential energy, the angular frequency and time period associated with these oscillations are relativistic, paralleling with Bohr's condition of stability. Harmonic oscillators, including systems engaged in orbital motion, manifest a restoring force that scales proportionally to the displacement of the system from its equilibrium position. To achieve the goal of attaining 1g-equivalent inertia through harmonic orbiting, a method is proposed for simulating the intricate gravitational dynamics crucial for efficient spacecraft design and mission planning, enhancing the capabilities of space exploration endeavors.