A Model for the Simulation of Artificial Gravity in Settlements on Metallic Low-Gravity Celestial Objects

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Current models for artificial gravity on settlements generally involve rotating the residential object to induce a centrifugal force that can push inhabitants toward the floor of the settlement, away from the center. However, in the scenario that there are multiple small bases on one celestial object such as an asteroid, such models are limited in that separate “stations” would need to rotate separately on their own axes to induce their artificial gravity. It would be far more efficient to have an artificial gravity apparatus that could universally act on all bases. Here I propose a novel model for an artificial gravity “ring” orbiting a metallic celestial body that contains unit cell electromagnets. These electromagnets, when specifically activated, can act upon different sides of the object and cause it to rotate, simulating a centrifugal force attracting people towards the floor of their respective base (the ceiling if viewed from the perspective of an observer standing on the surface of the object). The ring itself is formed when a delivery device containing all the unit cells breaks apart when it enters the Roche limit of the object. To ensure that it does break apart as well as to provide an energy source for the electromagnets, I propose a rather risky but also novel and possible solution of storing quark-gluon plasmas to substantially increase the density of the box, which guarantees it will be broken apart in the Roche limit, and a superheated ion trap storage device that can help extremely small amounts of quark-gluon plasma get released, cool, and condense, such that matter-antimatter annihilation occurs, energy is released, and the electromagnets are powered. Rotation of the celestial body can be modulated by inhabitants of the settlement as needed to attain a downward acceleration as close to g as possible.