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Asteroid Redirect

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Asteroids are a great threat to mankind. Here we will show that it is possible to redirect them from their trajectories by means of a strong gravitational *repulsion*, produced by the gravitational interaction between the asteroid and a Gravitational Spacecraft positioned close to the asteroid.

Key words: Asteroid Redirect, Gravitational Spacecraft, Gravitational Mass, Gravity.

Previously, I have published a paper where it is shown a new type of quantum device for controlling gravity, called *Quantum Controller of Gravity* [1], which is basically a spherical capacitor connected to a specific voltage source. This device acts controlling at *subatomic level*, the *gravitational mass* of a thin spherical shell at the *outer plate* of the spherical capacitor. This thin shell works as a *Gravity Controller*, in such way that if the gravity acceleration at the inner border of the Gravity Controller is g (See Fig.1) then the gravity acceleration outside the Gravity Controller becomes $g' = \chi g$ (assuming that the Gravity Controller is sufficiently far from other bodies in such way that the intensity of their gravitational fields are negligible in the region); $\chi = m_g / m_{i0}$ [2] (m_{i0} and m_g are respectively, the inertial mass and the *gravitational mass* of the thin spherical shell (region of the Gravity Controller)); the value of m_g is controlled by means of the variation of the electric field in the mentioned region.

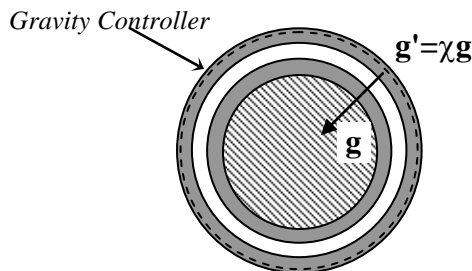


Fig.1 – Schematic diagram of a Gravity Controller

I have also shown that a Quantum Controller of Gravity can be transformed into a Gravitational Spacecraft [3]. In this way, we can imagine a spherical Gravitational Spacecraft

with several (n) concentric spherical capacitors each one with a Gravity Controller, as shown in Fig.2. In this case, if all the n Gravity Controllers have the same value for χ , and the gravity acceleration at the inner border of the *first* Gravity Controller is $g = -Gm_{g(s)} / r^2$, where $m_{g(s)} \cong m_{i0(s)}$ ($m_{i0(s)}$ is the *inertial mass* of the gravitational spacecraft, correspondent to the region involved by the *first* Gravity Controller), then the gravity acceleration outside the *nth* Gravity Controller becomes $g' = \chi^n g$.

In addition, if $\chi < 0$ and n is *odd* then the expression above can be rewritten as follows

$$g' = \chi^n g = -|\chi^n| \left(-G \frac{m_{g(s)}}{r^2} \right) \cong +|\chi^n| G \frac{m_{i0(s)}}{r^2} \quad (1)$$

This means that if a Gravitational Spacecraft with n (odd) Gravity Controllers is positioned close to an asteroid, then the asteroid will be repelled from it with a gravity acceleration $g' \cong +|\chi^n| G m_{i0} / r^2$. Therefore, if for example, $n = 29$, $\chi = -3$, $r = 10\text{km}$ and $m_{i0} = 15\text{ton}$, then the gravity acceleration, g' , acting on the asteroid due to the Gravitational Spacecraft, will be $g' \cong +0.6\text{m/s}^2$ (*repulsive* in respect to the spacecraft).

The idea of generation of a *repulsive* gravitational force field using Gravity Controllers is not new. In a previous paper we have showed a similar method [4].

* In this case, there is also a contribution due to the spherical capacitors, but it can be inconsiderate if the capacitors are very thin (thick $\ll 1\text{mm}$); $n \ll 100$; $|\chi| < 10$ and $m_{i0(s)} > 10\text{ton}$.

Gravitational Spacecraft

(with n concentric spherical capacitors, each one with one Gravity Controller)

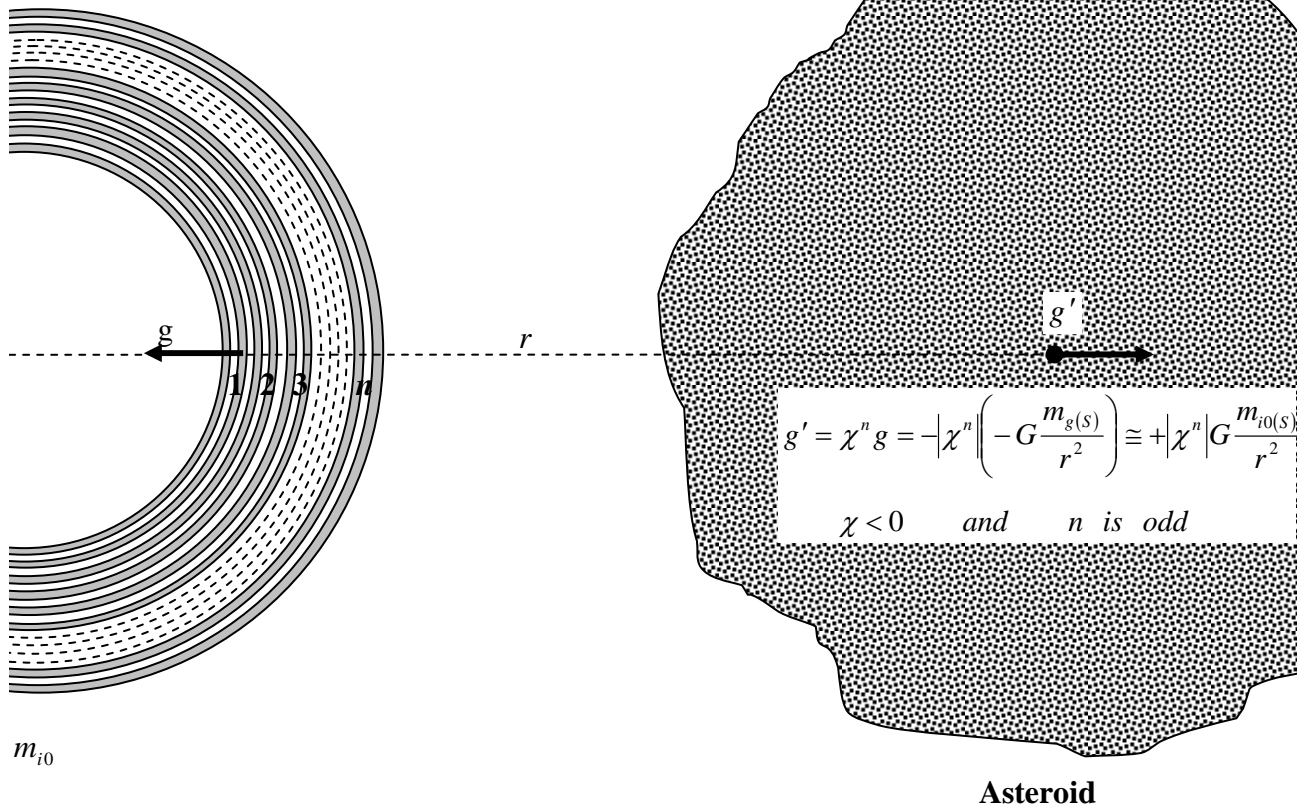


Fig.2- *Asteroid Redirect*. For example, if $n = 29$, $\chi = -3$, $r = 10\text{km}$ and $m_{i0(s)} = 15\text{ton}$, then the gravity acceleration, g' , acting on the asteroid due to the Gravitational Spacecraft, will be $g' \cong +0.6\text{m/s}^2$ (*repulsive* in respect to the spacecraft).

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