Abstract Submitted
for the MAS14 Meeting of
The American Physical Society

Energy required to knock the Earth out of its own orbit, (cosmic catastrophe) AHMAD REZA ESTAKHR, Physics Research Center — How much energy would be required to knock the Earth out of its own orbit? (throwing Earth out of orbit) Sometimes I wondering how the Earth could be thrown out of orbit! The gravitational disturbance that results will form a wave that travels across the spatial fabric in much the same way that a pebble dropped into a pond makes ripples that travel across the surface of the water. So we wouldn't feel a change in our orbit around the Sun until this G-wave reached the Earth all of sudden, and without any warning, these ripples of gravity travel at exactly the speed of light! when a beam of G-wave is incident on a planet; in the process, the G-wave entirely absorbed by the planet. If Energy of G-wave is larger than the planet's work function W– the energy required to dislodge the planet from the orbit (the minimum energy required to free the planet from the orbit is called the work function of that planet)–the planet can be thrown out of orbit, unless E>W, where K_p represents the kinetic energy of the planet leaving the orbit. The formula is the following: $E = K_p + W$, in the case of the Earth Work function $W = -30 * 10^{15} c^2$ where the E represents total Energy of G-wave and K_p represents the kinetic energy of the Earth leaving the orbit.

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Date submitted: 24 Jun 2014 Electronic form version 1.4