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A Study On Standard Approach Applied to the Motion of a Celestial Body in Our Universe

Research Article

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Abstract: In this article, we describe that in standard mechanics,the energy of a celestial body circulating in their axis is constant. As we know, that in their axis is constant. As we know, that in Newton gravitational law, this energy is defined as the product of masses (one larger and other small) entering in the gravitional attraction as well as the size of the major semiaxis as we study in kepler laes. The objective of this paper is that the energy of moving body is decreasing when the quantum mechanic of the body is considered.

Keywords: Quantum Mechanics, Keplar Laws, Newtonian Mechanics.

1. Introduction

In solar system, the celestial bodies behaves like a quantum kind of approach. In Bohr atomic theory the energy of the moving body which is an electron in the hydrogen atom and a planet or satellite is constant number and same property as in the angular momentum. In this article, we studied the changes take place in energy.

2. Research Technique

The solution of the problem is solved by the following technique applied to show that the energy of the celestial bodies changes as follow.

2.1. Firstly, we applied quantum theory of the motion of a celestial bodies

Predictions of quantum mechanics have been verified experimentally to an extremely high degree of accuracy. According to the correspondence principle between classical and quantum mechanics, all objects obey the laws of quantum mechanics, and classical mechanics is just an approximation for large systems of objects (or a statistical quantum mechanics of a large collection of particles). The laws of classical mechanics thus follow from the laws of quantum mechanics as a statistical average at the limit of large systems or large quantum numbers. However, chaotic systems do not have good quantum numbers, and quantum chaos studies the relationship between classical and quantum descriptions in these systems.

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2.2. Secondly, we found the emission of the energy by quantum system

If the trajectory of the body is defined in closed path then we use quantum mechanics to find out the surface integral denoted by S i.e

$$S = \oint \rho \, dr$$
$$S = \oint mv \, dr = (m+1)$$

Where h is the plank constant and $m+1$ has taken for convenience. If the path of the object is circular then $S = 2\pi mvr = (m+1)h$. The energy of the celestial bodies is given by

$$E_{(n+1)} = -\frac{-GMm}{2r_{(n+1)}}$$

where M and m are the masses of two primaries and r is the major axis. Therefore,

$$\begin{aligned}
\Delta S &= (n+1-n)h = 2\pi m[(Vr)_{(n+1)} - (Vr)_n] \\
&= 2\pi m[(V_n + \Delta V_n)(r_n + V_n \Delta r_n - V_n r_n)] \\
&= 2\pi m(\Delta V_n r_n + v_n \Delta r_n). \text{ Where,} \\
\Delta v_n &= v_(n+1) - v_n \\
\Delta r_n &= r_(n+1) - r_n \\
\Delta E &= E_(n+1) - E_n \\
&= \frac{-GMm}{2}\left(\frac{1}{r_{(n+1)}} - \frac{1}{r_n}\right) \\
\Delta E &= \frac{-GMm}{2r_n^2}\Delta r_n
\end{aligned}$$

ΔE is positive $r_n < r_{(n+1)}$. Now apply virial theorem to the above case we found that $E_1 + E_2 = 0$, where E_1 and E_2 are Kinetic energy and potential energy the $E_n = -E_1(n)$. This equation is show that the energy of the celestial body is decreasing in case of kinetic energy or we can say that total energy is constant whenever the body is moving the change in the energy is taken place.

3. Conclusion

In this article, we studied that when celestial body is entering in the solar system about its gravitional centre without any loss of the total energy.

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