Another Explanation of the Gravity

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A different explanation of the gravity is possible using the Fatio-Le Sage idea with the cosmic microwave background radiation.

Key words: Fatio-Le Sage idea, cosmic microwave background radiation.

It is assumed that all body with a temperature greater than *0 ºK* emits electromagnetic radiation in the form of thermal radiation [1]; consequently, we may suppose that all body emits this type of radiation [2]. As in addition, in a thermal equilibrium, all body emits the same quantity of thermal radiation than absorbs, and vice versa, all body absorbs the same quantity of thermal radiation than emits, [1] we conclude that there will always be thermal radiation in the intergalactic space (IGS). From the works of Eddington, Regener and Nernst on the temperature of the IGS, that use the law of Stefan-Boltzmann, [3] we deduce that these processes of emission and absorption of thermal radiation produce a thermal equilibrium at a temperature of *2.7 ºK*, which corresponds to the temperature of the cosmic microwave background radiation (CMBR). Therefore, we conclude finally that the thermal radiation inside of the IGS is the CMBR.

Now, using the Fatio-Le Sage idea with the CMBR, we have that for a single body 1, of mass m_1, there is no moving because the CMBR flux is isotropic and cancels itself: $N_1/2 - N_1/2 = 0$, where N_1 would be the total number of lines of force equivalent to the CMBR flux on the body 1. But the presence of another body 2, of mass m_2, at a distance r, produces the two opposite pushing forces: $F_1 = (m_2/2)\ k_g\ (N_1/S)\ (S/r^2)$ and $F_2 = (m_1/2)\ k_g\ (N_2/S)\ (S/r^2)$, on the first and second bodies, respectively, approaching each other, and where we have considered the number of lines per unit area per solid angle, k_g being a constant of proportionality. Doing $k_g\ N_1 = G\ m_1$ and $k_g\ N_2 = G\ m_2$, because of the process of emission and absorption of all the atoms of any body in the thermal equilibrium cited before, we obtain, after summing, the Newton's gravity attraction force: $F = F_1 + F_2 = Gm_1m_2/r^2$, where G is the Newton's gravitational constant.

[1] Francis Weston Sears, Introducción a la Termodinámica, Teoría Cinética de los Gases y Mecánica Estadística, pp. 338 and 345, Reverté, Barcelona, 1959. Original edition, An Introduction to the Thermodynamics, the Kinetic Theory of Gases, and Statistical Mechanics, Addison-Wesley, Reading, Massachusetts, 1952.

[2] Arthur Beiser, Conceptos de Física Moderna, p. 261, Ediciones del Castillo, Madrid, 1965. Original edition, Concepts of Modern Physics, McGraw-Hill, 1963.

[3] A. K. T. Assis and M. C. D. Neves, History of the 2.7 K Temperature Prior to Penzias and Wilson, Apeiron Vol. 2 Nr. 3 July 1995, 79-87.
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