

Accelerated Expansion of a Matter-Antimatter Universe and Gravity as an Electromagnetic Force

Authors : Maarten J. Van der Burgt

Abstract : A universe containing matter and antimatter can only exist when matter and antimatter repel each other. Such a system, where like attracts like and like repels unlike, will always expand. Calculations made for such a symmetric universe demonstrate that the expansion is consistent with Hubble's law, the observed increase in the expansion velocity with time, the initial high acceleration and the foam structure of the universe. Conversely, these observations can be considered as proof for a symmetrical universe and for antimatter possessing a negative gravitational mass. A second proof can be found by reinterpreting the behavior of relativistic moving charged particles. Attributing their behavior to a charge defect of $\sqrt{(1-v^2/c^2)}$ instead of to a mass defect of $1/\sqrt{(1-v^2/c^2)}$ makes it plausible that gravitation is an electromagnetic force, as already suggested by Feynman. This would automatically imply that antimatter has a negative gravitational mass. These proofs underpin the untenability of the Weak Equivalence Principle which states that in a gravitational field all structure less point-like particles follow the same path.

Keywords : celestial mechanics, cosmology, gravitation astrophysics, origin of structure, miscellaneous (matter and antimatter)

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