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Creation and Annihilation of Spacetime Elements

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Abstract : Gravitation and the expansion of the universe at a large scale are generally regarded as two completely distinct phenomena. Yet, in general, relativity theory, they both manifest as 'curvature' of spacetime. We propose a hypothesis which treats these two 'curvature-producing' phenomena as aspects of an underlying process. This process treats spacetime itself as composed of discrete units (Plancktons) and is 'dynamic' in the sense that these elements of spacetime are continually being both created and annihilated. It is these two complementary processes of Planckton creation and Planckton annihilation which manifest themselves as - 'cosmic expansion' on the one hand and as 'gravitational attraction' on the other. The Planckton hypothesis treats spacetime as a perfect fluid in the same manner as the co-moving frame of reference of Friedman equations and the Gullstrand-Painleve metric; i.e.Planckton hypothesis replaces 'curvature' of spacetime by the 'flow' of Plancktons (spacetime). Here we discuss how this perspective may allow a unified description of both cosmological and gravitational acceleration as well as providing a mechanism for inducing an irreducible action at every point associated with the creation and annihilation of Plancktons, which could be identified as the zero point energy.

Keywords : discrete spacetime, spacetime flow, zero point energy, planktons
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