The Janus Cosmological Model

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Content

When one tries to introduce negative masses in RG the subsequent interaction laws, as shown by Bondi in 1957, makes the things unmanageable, due to the runaway effect and the obvious instability of negative mass clusters. Shifting to a bimetric description of the universe, where the second metric refers to negative mass and negative energy particles, involved to the the positive mass metric through a system of two coupled field equations, the interaction laws drastically change. Negative masses mutually attract, while opposite sign masses repel each other. This brings a new insight on cosmology, with many benefits. In particular an exact solution is derived, which provides the acceleration of the expansion, as a consequence of the presence of a dominating negative mass in the universe. Negative mass replaces both dark matter and black energy. Negative mass implies a negative energy content. Dynamical groups theory provides the nature of such negative content whose particles are nothing but a copy of ordinary ones with negative mass and negative energy. Emitting negative energy photons, negative mass is basically invisible to us. As negative mass forms the major part of the universe, it rules the gravitational instability, after discoupling, and gives the positive matter a lacunar structure, anchored around invisible negative mass clusters, the Great Repeller being one of them. Related papers

J.P.Petit, G.D’Agostini Cosmological Bimetric model with interacting positive and negative masses and two different speeds of light, in agreement with the observed acceleration of the Universe. Modern Physics Letters A, Vol.29 34, 2014 Nov 10th

Summary

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