Metal-like Gravity and its Cosmological Implications

Kamal Barghout

Department of Math and Natural Sciences, Prince Mohammad University, Al-khobar, KSA
kbarghout@pmu.edu.sa

ABSTRACT

Modification to Newton gravitational interaction is presented. It provides an understanding of a novel universal gravitational field of particle origin that defines alternative attributes to elementary constituents of matter particles and the gravitational interactions between them. It investigates gravitational relationship between two types of mass. The model assigns Coulombic gravitational interaction to DM particles and Baryons by attributing self-antigravity to both normal matter and dark matter (DM). It defines the interaction as like particles repel while unlike particles attract. Metal-like force is proposed where same type mass (baryons) are gravitationally attracted to each other when a sea of DM particles are attracted to them and glue them together analogous to a metal bond. At close range, other dominant forces take place such as electromagnetic force. In light of this model, intergalactic self- repulsive DM particles are proposed to result in accelerating expansion of the universe. The model produces flat rotational curves for spiral galaxies and provides a physical explanation to MOND theory.