A Complex Unified All-scale Potential for Positive and Negative Mass

JUDITH GIANNINI, Retired — The Standard Model faces challenges in its attempts to explain dark matter and dark energy. The Fractal Rings and Composite Elementary Particles Model (FRACEP) was developed as a possible alternative to shed some light on the problem. It is based on both positive and negative mass fundamental particles (Gp and Gn respectively), and it includes a fully-unified complex potential to characterize the behavior of these two mass sources. This potential is a function of mass and square-root of mass. It is real for positive mass sources, but complex for negative mass sources at every scale. The real component at the macro-scale far-field is consistent with Newton for positive and negative mass sources before a near-field transition to oscillation. The slightly out-of-phase oscillation could allow quasi-stable mixed-mass particles without the usual expected runaway repulsion between the positive and negative mass components. The closest-separation, near-field oscillation for the Gn-Gp interaction quickly grows to the large repulsive level expected for a creation event a condition that might have driven an inflationary expansion of space in the early universe. The potentials complex behavior might help explain some of the dark matter and energy puzzle.

Judith Giannini
Retired

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