

Abstract Submitted
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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.

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