

Gravitational anti-screenings around galaxies and dark matter halos in the composite supersymmetric superfluid quantum vacuum of the periodic waveguided multiverse

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Gravitational anti-screenings by virtual fermion–antifermion pairs—gravitational dipoles—are investigated in frames of the periodic waveguided multiverse (PWM) concept by the author. The PWM-concept expands the general relativity by Einstein and predicts the matter–antimatter (AM) gravity masses symmetry and the composite–weightless fermion–antifermion superfluid vacuum with the virtual gravitational dipoles. The gravitational anti-screening in this vacuum creates the gravitationally observed—invisible cocoon-like galactic halos around galaxies of ordinary matter (OM) or dark matter (DM) and increases their bare gravitational masses. The predicted PWM-DM-particles are intrinsically identical to OM-particles (very stable massive DM-photons, DM-electrons, DM-baryons, etc), living in two the nearest physically identical and literally parallel universes, they are detectable via OM–AM-mediating AM and creatable via AM–AM collisions. The PWM-vacuum concept simultaneously explains (a) the DM and dark energy (DE) mysteries; (b) reformulates the classical supersymmetry concept as the hidden–composite–unbroken vacuum supersymmetry, with zero cosmological constant by Einstein and (c) demystifies some basic QM-phenomena like the nature of probabilistic quantum-mechanical (QM) behavior, the double-slit experiment, the entanglement phenomena, Pauli exclusion and Heisenberg uncertainty principles in the QM.