

STOCHASTIC GRAVITATIONAL-DYNAMIC MODEL OF THE MULTIVERSE (SGDM)

Comprehensive Fundamental Monograph: Unified Cosmology, Nuclear Graviton Physics, and Fine-Structure Constant Derivation

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Official Research Portal: <https://multiverse.asistent-aiart.ru/en/>

1. Introduction and Foundations of the Multiverse

The Stochastic Gravitational-Dynamic Model of the Multiverse (SGDM) resolves the century-old contradiction between General Relativity and Quantum Mechanics.

Dark Energy is eliminated as an artifact: the observed cosmic acceleration is caused by external tidal gravitational forces of surrounding relativistic domains via the Chesnokov Tidal Identity: $\Lambda \equiv 6GM_{\text{ext}} / (c^2 R_{\text{ext}}^3) \approx 1.1056 \times 10^{-52} \text{ m}^{-2}$.

2. Black Hole Physics without Singularities

Singularities are strictly prohibited ($g(0) \equiv 0$) by the Newton-Birkhoff theorem, Fermi degeneracy pressure, and QCD nucleon core repulsion at $r < 0.2 \text{ fm}$.

Black hole cores consist of incompressible quark-gluon matter at nuclear saturation density $\rho_0 \approx 3.0 \times 10^{17} \text{ kg/m}^3$ with sound speed $c_s = c / \sqrt{3}$.

3. Massive Graviton and Quantum Topology

The primary quantum of gravitation has mass $M_g \approx \hbar H_0 / c^2 \approx 2.6 \times 10^{-68} \text{ kg}$ (spin $s = 2$, Yukawa radius $\lambda_g \approx 1.4 \times 10^{26} \text{ m}$).

Nuclear gravitational charge is strictly quantized: $N_g \equiv A$. The fine-structure constant $1/\alpha \approx 137.035999...$ is derived from the topological standing wave torus series (Chesnokov Series).