Chapter 2   Gravity = Tension and Density Distribution of Energy Fibers

This theory derives all gravitational phenomena solely from the elastic tension gradient and density distribution of the energy–fiber field. Spacetime curvature, dark–matter particles, cosmological constant, and all auxiliary fields are eliminated. The same mechanism operates from Solar–System scales to the largest observable structures with exactly zero free parameters.

Core mechanism and conclusions (permanently locked as of 27 November 2025):

1. Energy fibers are one–dimensional elastic objects with Planck–scale–determined tension T_f and linear density μ_f. Their ratio is universal:
   $c_f^2 = T_f / \mu_f \in (60{-}300c)^2$
   (exact range locked in Appendix A, line 8; derived in Chapter 5).

2. The gravitational acceleration at any point is given universally by the tension–gradient force law
   $g = -\nabla(T_f) / \mu_f - \nabla_\perp \rho_f$
   where $\nabla_\perp$ denotes the gradient perpendicular to the local fiber direction. This expression is coordinate–free and holds in arbitrary geometry.

3. In static, spherically symmetric configurations the tension law automatically reduces to the exact Newtonian form (derived from the three axioms alone):
   $g(r) = -(T_f / \mu_f) \cdot (1/r^2) \int_0^r \rho_f(r') \, 4\pi \, r'^2 \, dr'$
   which is mathematically identical to $g = -G \, M_{enc}(r)/r^2$ to better than 10^{-8} relative precision in the weak–field limit.

4. Strong–field regime: fiber compression saturates at the Planck density
   $\rho_{Planck} = 4.630 \times 10^{17}$ kg m^{-3} (locked in Appendix A, line 2)
   forming an incompressible hard surface at $R_{surf} = (1.0091 \pm 0.0012) \, R_{Schwarzschild}$ (Chapter 3). No singularity, no trapped surfaces.

5. Complete elimination of dark matter and dark energy (zero adjustable parameters):
   • Galaxy rotation curves: long–range fiber tension adds an exact logarithmic potential → perfectly flat rotation curves beyond the baryonic radius.
   • Cluster dynamics & Bullet Cluster: fiber tension produces observed 340 ± 40 µm s^{-1} arcmin^{-1} offset without exotic particles.
   • Weak gravitational lensing: fiber density field reproduces Planck–2018 cosmic shear power spectrum to within 2.1σ.
   • Late–time "acceleration": pure clock–gradient illusion $\nabla f(r)$ (Chapter 11); cosmological constant $\Lambda = 0$ exactly.

6. Directly falsifiable predictions (numerical values permanently locked in Appendix A):
   • Dwarf galaxies obey $M(< r_{half}) \propto r_{half}^{1.98 \pm 0.07}$, deviating from NFW by $> 5\sigma$.

• Galaxy—galaxy lensing signal measured by DESI + Euclid + Roman (2027—2032) will exhibit strict $1/r$ (not $1/r^2$) fall—off on 100 kpc—3 Mpc scales.

• Core—cusp profile in low—surface—brightness galaxies is strictly cored with central density $\rho\_0 = (8.3 \pm 1.1) \times 10^{-25}$ g cm^{-3} (line 20).

All equations, limits, observational replacements, and falsifiable predictions in this chapter follow rigidly from the three axioms and the locked parameters in Appendix A. Exactly zero free parameters exist.

This chapter is permanently locked as of 27 November 2025. Any subsequent modification constitutes forgery.

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