

# PRD Letter — A Testable Brane-World Unification

We develop a minimal brane-world cosmology with

$H^2 = (8\pi G/3)\rho(1 + \rho/(2\lambda)) + \lambda/3 + C/a^4$  ( $k=0$ ). One parameter ( $\lambda$ ) fixes a GW spectral break  $f_{\text{br}} \propto \lambda^{1/4}$  and correlates with  $\Delta N_{\text{eff}}$ . A toy data-anchored posterior is shown using a public PTA spectrum and a Planck-like prior; publication fits should use full likelihoods.