

# Cover Letter — JCAP

JCAP Editorial Office (SISSA/IOP)

Subject: Presubmission — testable brane-world unification

Dear Editors,

I submit “A testable brane-world unification with early-time  $\rho^2$  and dark radiation” (Ricardo Maldonado). From a higher-D action we derive the SMS equations and a modified Friedmann relation featuring a  $\rho^2$  term and dark-radiation. A single parameter  $\lambda$  sets a GW spectral break  $f_{\text{br}} \propto \lambda^{1/4}$  and correlates with  $\Delta N_{\text{eff}}$ . We present posteriors using the official NANOGrav 15-year KDE spectrum with a Planck-2018 prior, plus a PTA→LISA context figure. The framework reduces to GR at late times and is falsifiable via a joint PTA + CMB/BBN fit. We request consideration as a Letter/Article.

Sincerely,

Ricardo Maldonado

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