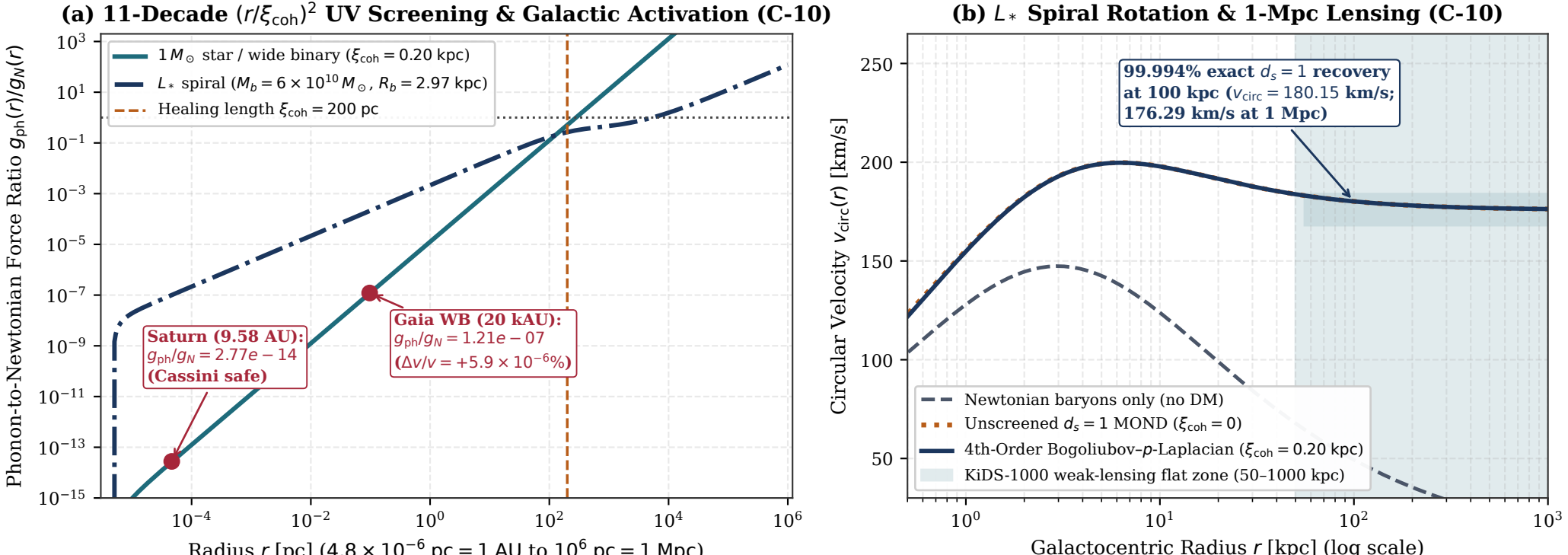

(a) 11-Decade $(r/\xi_{coh})^2$ UV Screening & Galactic Activation (C-10)
$1\,M_\odot$ star / wide binary ($\xi_{coh} = 0.20$ kpc)
L_* spiral ($M_b = 6 \times 10^{10}\,M_\odot$, $R_b = 2.97$ kpc)
Healing length $\xi_{coh} = 200$ pc
Saturn (9.58 AU):
$g_{ph}/g_N = 2.77e-14$
(Cassini safe)
Gaia WB (20 kAU):
$g_{ph}/g_N = 1.21e-07$
($\Delta v/v = +5.9 \times 10^{-6}$%)
Phonon-to-Newtonian Force Ratio $g_{ph}(r)/g_N(r)$
Radius r [pc] (4.8×10^{-6} pc = 1 AU to 10^6 pc = 1 Mpc)
(b) L_* Spiral Rotation & 1-Mpc Lensing (C-10)
99.994% exact $d_s = 1$ recovery
at 100 kpc ($v_{circ} = 180.15$ km/s;
176.29 km/s at 1 Mpc)
Newtonian baryons only (no DM)
Unscreened $d_s = 1$ MOND ($\xi_{coh} = 0$)
4th-Order Bogoliubov-p-Laplacian ($\xi_{coh} = 0.20$ kpc)
KiDS-1000 weak-lensing flat zone (50–1000 kpc)
Circular Velocity $v_{circ}(r)$ [km/s]
Galactocentric Radius r [kpc] (log scale)