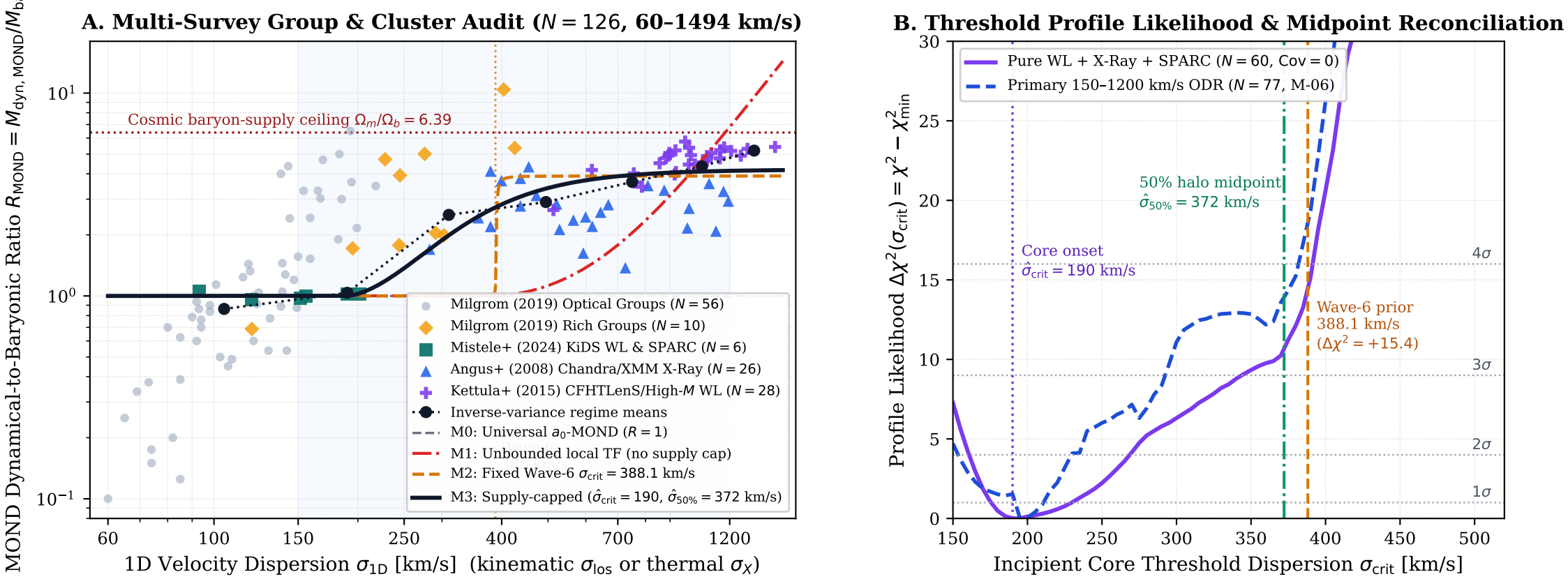

A. Multi-Survey Group & Cluster Audit ($N = 126$, 60–1494 km/s)
Cosmic baryon-supply ceiling $\Omega_m/\Omega_b = 6.39$
Milgrom (2019) Optical Groups ($N = 56$)
Milgrom (2019) Rich Groups ($N = 10$)
Mistele+ (2024) KiDS WL & SPARC ($N = 6$)
Angus+ (2008) Chandra/XMM X-Ray ($N = 26$)
Kettula+ (2015) CFHTLenS/High-M WL ($N = 28$)
Inverse-variance regime means
M0: Universal a_0-MOND ($R = 1$)
M1: Unbounded local TF (no supply cap)
M2: Fixed Wave-6 $\sigma_{crit} = 388.1$ km/s
M3: Supply-capped ($\hat{\sigma}_{crit} = 190$, $\hat{\sigma}_{50\%} = 372$ km/s)
MOND Dynamical-to-Baryonic Ratio $R_{MOND} = M_{dyn,MOND}/M_b$
1D Velocity Dispersion σ_{1D} [km/s] (kinematic σ_{los} or thermal σ_X)
B. Threshold Profile Likelihood & Midpoint Reconciliation
Pure WL + X-Ray + SPARC ($N = 60$, Cov = 0)
Primary 150–1200 km/s ODR ($N = 77$, M-06)
50% halo midpoint
$\hat{\sigma}_{50\%} = 372$ km/s
Core onset
$\hat{\sigma}_{crit} = 190$ km/s
Wave-6 prior
388.1 km/s
($\Delta\chi^2 = +15.4$)
4σ
3σ
2σ
1σ
Profile Likelihood $\Delta\chi^2(\sigma_{crit}) = \chi^2 - \chi^2_{min}$
Incipient Core Threshold Dispersion σ_{crit} [km/s]