

10_HIGH_REDSHIFT_VALIDATIONS

Independent Validation of the 3D+3D Q-Field Activation Mechanism

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January 2026

Package Contents

Papers

File	Description
Paper_XXIII_B_Cosmological_Bridge_Genzel_v2_0.md	BBN/CMB consistency + Genzel et al. 2017 validation
Paper_Pablos_Galaxy_GS10578_3D3D_v1_0.md	GS-10578 $z=3.064$ quiescent galaxy analysis
Paper_S8_Tension_3D3D_Resolution_v1_1.md	S8 tension resolution (CMB vs lensing)
Paper_Environmental_Q_Field_Activation_v1_0.md	UDG diversity through environmental effects

Analysis Scripts

File	Description
Genzel_2017_Analysis.py	Analysis of Genzel et al. data
Genzel_Recalibration.py	Q-field mechanism recalibration

Key Results

1. Genzel et al. 2017 Validation

Declining rotation curves at $z \sim 0.9-2.4$ are a **NATURAL PREDICTION** of the localized Q-field mechanism:

z	f_Q	Predicted Decline	Observed Decline
0.0	3.0	~10%	~10%
0.9	1.0	~25%	~20%
2.2	0.4	~35%	~30%

2. S8 Tension Resolution

S8(lensing) = S8(CMB) x [1 - f_screen] = 0.834 x 0.92 = 0.767

Matches DES Y3 observation (0.759 +/- 0.024) within 0.3-sigma.

3. UDG Diversity

Environmental factor: $\beta_{\text{cluster}} = 1/\phi + (1/\phi^2) \times \ln(1 + N_{\text{eff}}/\phi^3)$

- NGC1052-DF2: $N_{\text{eff}} \sim 0.5$, $\sigma_{\text{pred}} \sim 10$ km/s (obs: 8.5 km/s)
- DF44: $N_{\text{eff}} \sim 30$, $\sigma_{\text{pred}} \sim 45$ km/s (obs: 47 km/s)

Falsifiable Predictions

1. **JWST z > 3:** Rotation curve decline > 40%
2. **Euclid S8(z):** Should increase toward CMB value at higher z
3. **UDG surveys:** sigma should correlate with local galaxy density

Citation

Calzighetti, S. & Lucy (2026). High-Redshift Validations of the 3D+3D Framework.
3D+3D Laboratory, Abbiategrosso, Italy. Zenodo.