

Differential brightening of stellar populations comes to the rescue of (not only) the mass-size relation

AGENCIA DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES Provecto PID2023-150393NB-100



 Universidad de Valladolid
 CO CHECTES COE OF (HOCOTRY) CHECTHORS SIZE FECTION
 financiado por MICIU/AEI

 Víctor Alonso-Rodríguez – University of Valladolid - Polychronis Papaderos and Fernando Buitrago
 victoralonsorodriguez61@gmail.com



MOTIVATION

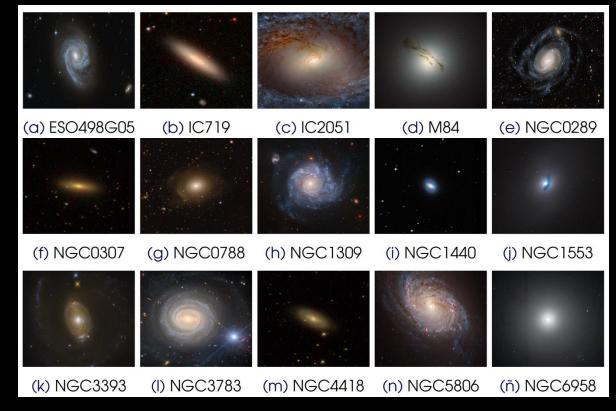
Study how the visual morphology of local galaxies changes if they were at a higher redshift

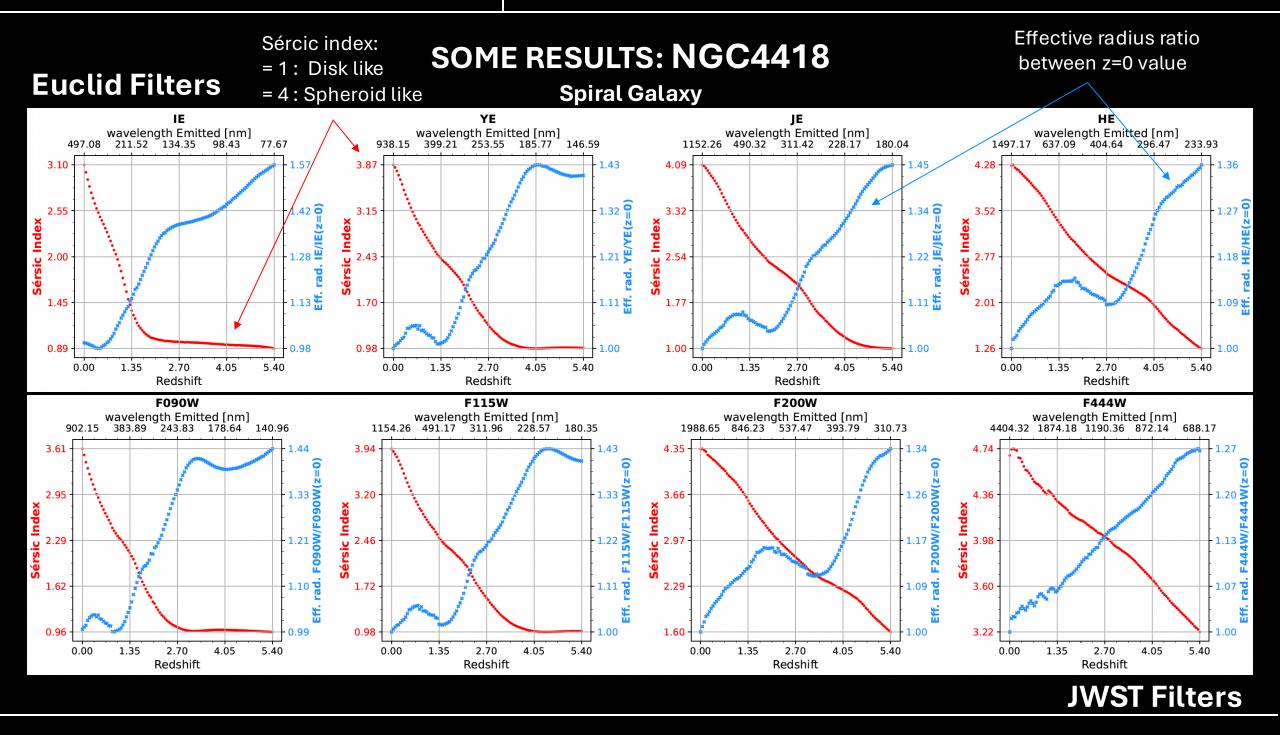
METHODOLOGY

Sérsic functions were fitted to synthetic images of galaxies centers computed from **MUSE** data and using the technique presented in Papaderos et al. 2023.

GOAL: to obtain the variation vs z of their structural parameters (the Sérsic Index and Effective Radius) by using GALFIT 15 galaxies computed in JWST, Euclid and SDSS filters. 109 z images per filter (z=0.0 to z=5.40). In total **45000** images analyzed individually with a pipeline made by scratch

SAMPLE





SOME RESULTS: M84 **Euclid Filters Elliptical Galaxy** YE ΗE IE JE wavelength Emitted [nm] 211.52 134.35 98.43 wavelength Emitted [nm] 399.21 253.55 185.77 146.59 wavelength Emitted [nm] 490.32 311.42 228.17 180.04 wavelength Emitted [nm] 637.09 404.64 296.47 497.08 77.67 938.15 1152.26 490.32 1497.17 233.93 .46 2.32 1.55 2.36 2.39 2.26 1.54 1.40 **(0=z)3[/3[** 1.26 **.** e e rad. YE/YE(z=0) .35 🧿 2.03 2.07 2.23 1.37 .23 **U=z)** .23 .23**HE/HE** Index Index Index Sérsic Index 1.78 1.74 2.07 Sérsic Sérsic Sérsic rad. rad. rad. ..12 🖁 1.12 🖁 1.13 1.45 1.09 1.37 1.49 1.90 ..00 1.16 L.00 1.21 0.98 1.74 0.95 5.40 2.70 5.40 0.00 1.35 4.05 5.40 0.00 2.70 4.05 1.35 4.05 5.40 0.00 1.35 4.05 2.70 1.35 0.00 2.70 Redshift Redshift Redshift Redshift F090W F115W F200W F444W wavelength Emitted [nm] 383.89 243.83 178.64 wavelength Emitted [nm] 1154.26 491.17 311.96 228.57 wavelength Emitted [nm] 1988.65 846.23 537.47 393.79 wavelength Emitted [nm] 4404.32 1874.18 1190.36 872.14 902.15 140.96 180.35 310.73 688.17 2.29 2.33 ..55 2.42 ..42 2.4 .06 (0=z) rad. F115W/F115W(z=0) F200W/F200W(z=0) F444W(z=0) F090W/F090W(2.00 2.04 2.32 2.3 Sérsic Index Sérsic Index Sérsic Index Sérsic Index 1.75 2.22 1.17 2.30 0.96 **p** rad. rad. 1.46 1.41 2.12 2.22 ËĤ. Ë 1.12 2.03).92 2.13 0.93 1.35 1.35 1.35 0.00 2.70 4.05 5.40 0.00 2.70 4.05 5.40 0.00 1.35 2.70 4.05 5.40 0.00 2.70 4.05 5.40 Redshift Redshift Redshift Redshift

JWST Filters