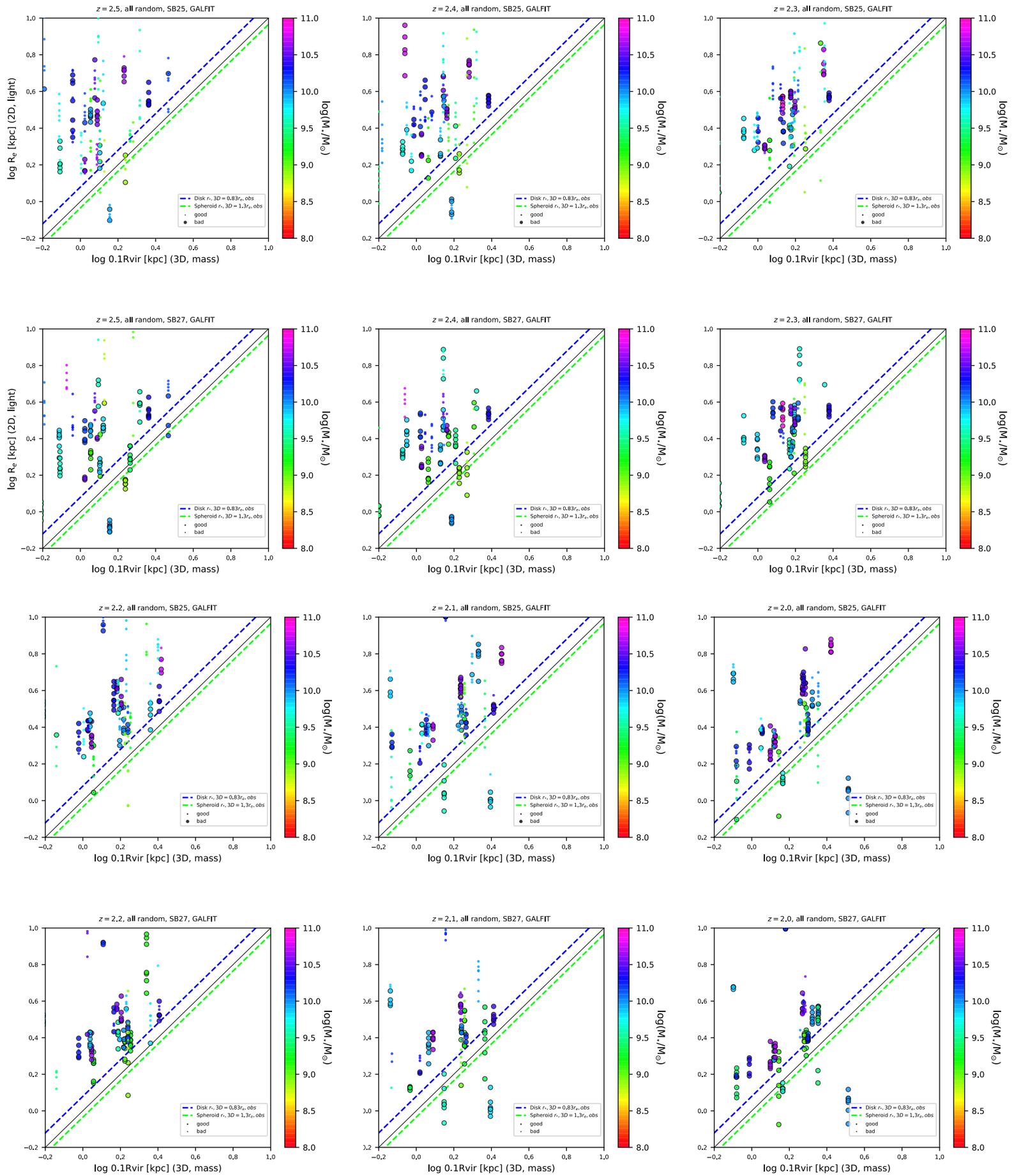
DEEP-Theory Discussion 14 March 2018 - 2D vs. 3D Galaxy Sizes - Vivian Tang

The plots at the top show 2D half-light radius R_e vs. 3D half-stellar-mass radius R_{3D} for many redshift z = 2.5 examples, and those at the bottom are for z = 2.0.

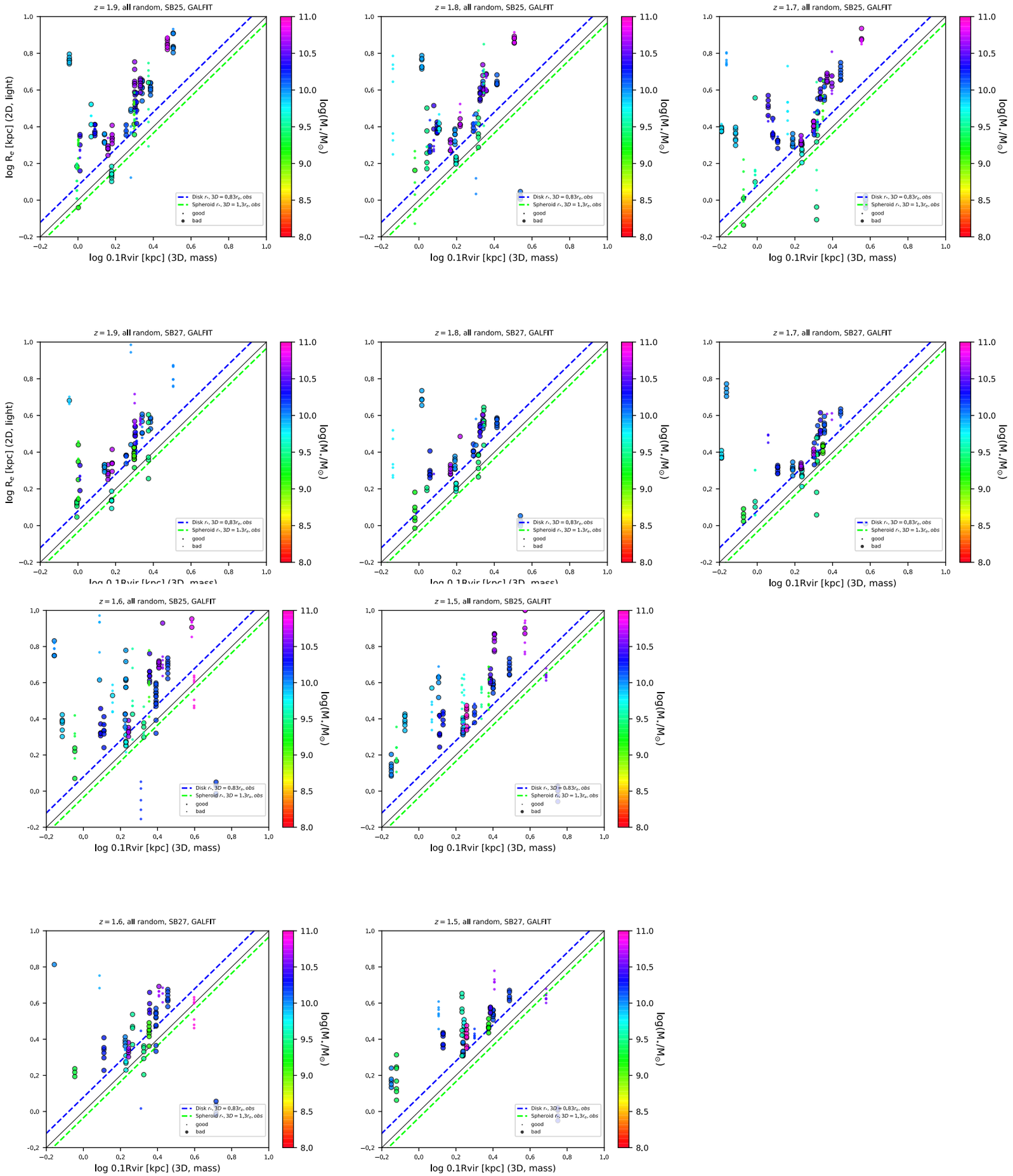
2D R_e measured by GALFIT from CANDELized VELA gen3 simulations is typically larger than the 3D half-stellar-mass radius R_{3D}. The ratio R_e/R_{3D} decreases with decreasing redshift.



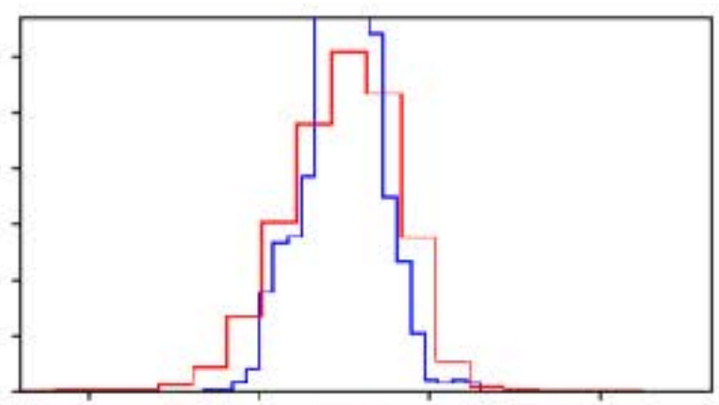
DEEP-Theory Discussion 14 March 2018 - 2D vs. 3D Galaxy Sizes - Vivian Tang

The plots at the top show 2D half-light radius R_e vs. 3D half-stellar-mass radius R_{3D} for many redshift z = 1.9 examples, and those at the bottom are for z = 1.5.

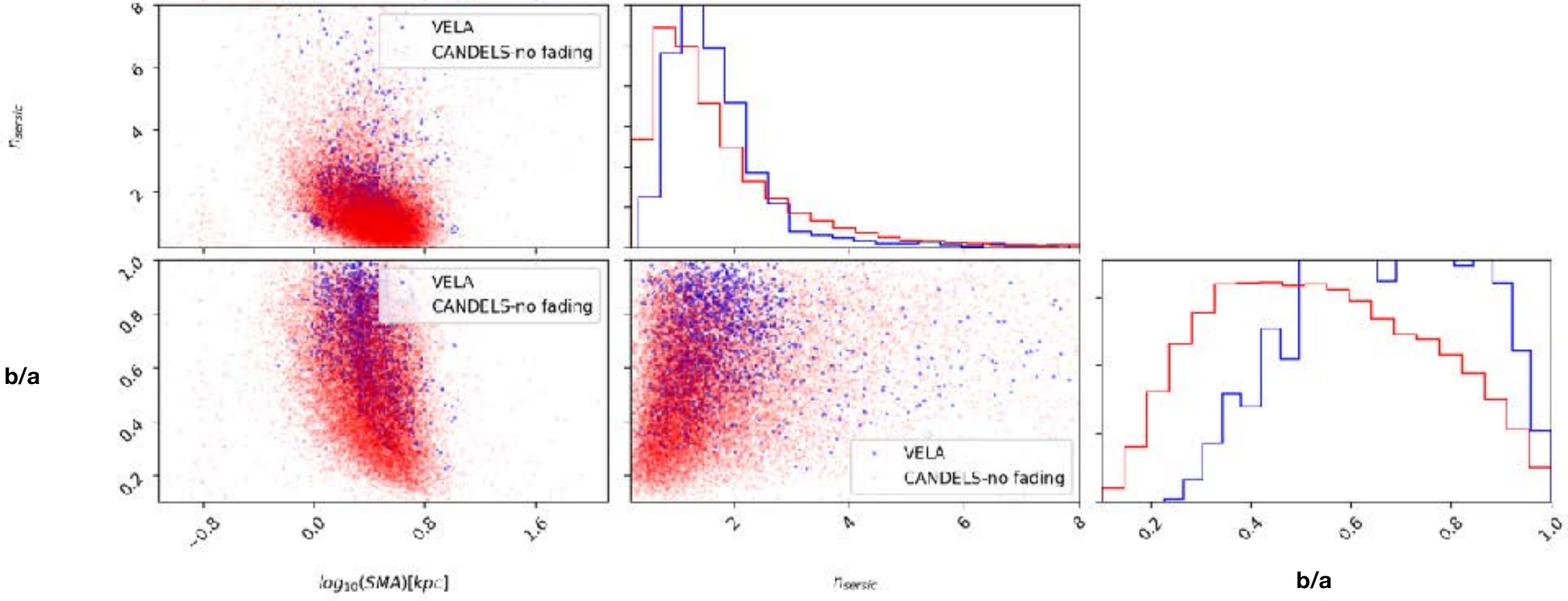
2D R_e measured by GALFIT from CANDELized VELA gen3 simulations is typically larger than the 3D half-stellar-mass radius R_{3D}. The ratio R_e/R_{3D} decreases with decreasing redshift.



VELA Sunrised CANDELized images measured by Haowen Zhang using GALFIT compared with CANDELS images, showing that the sizes (R_e = semi-major axis) and Sersic indexes n_{sersic} are similar, although the b/a ratios are higher especially for small R_e galaxies. It would be worthwhile making plots covering similar stellar or virial masses, as Mark Mozena did in his PhD thesis.



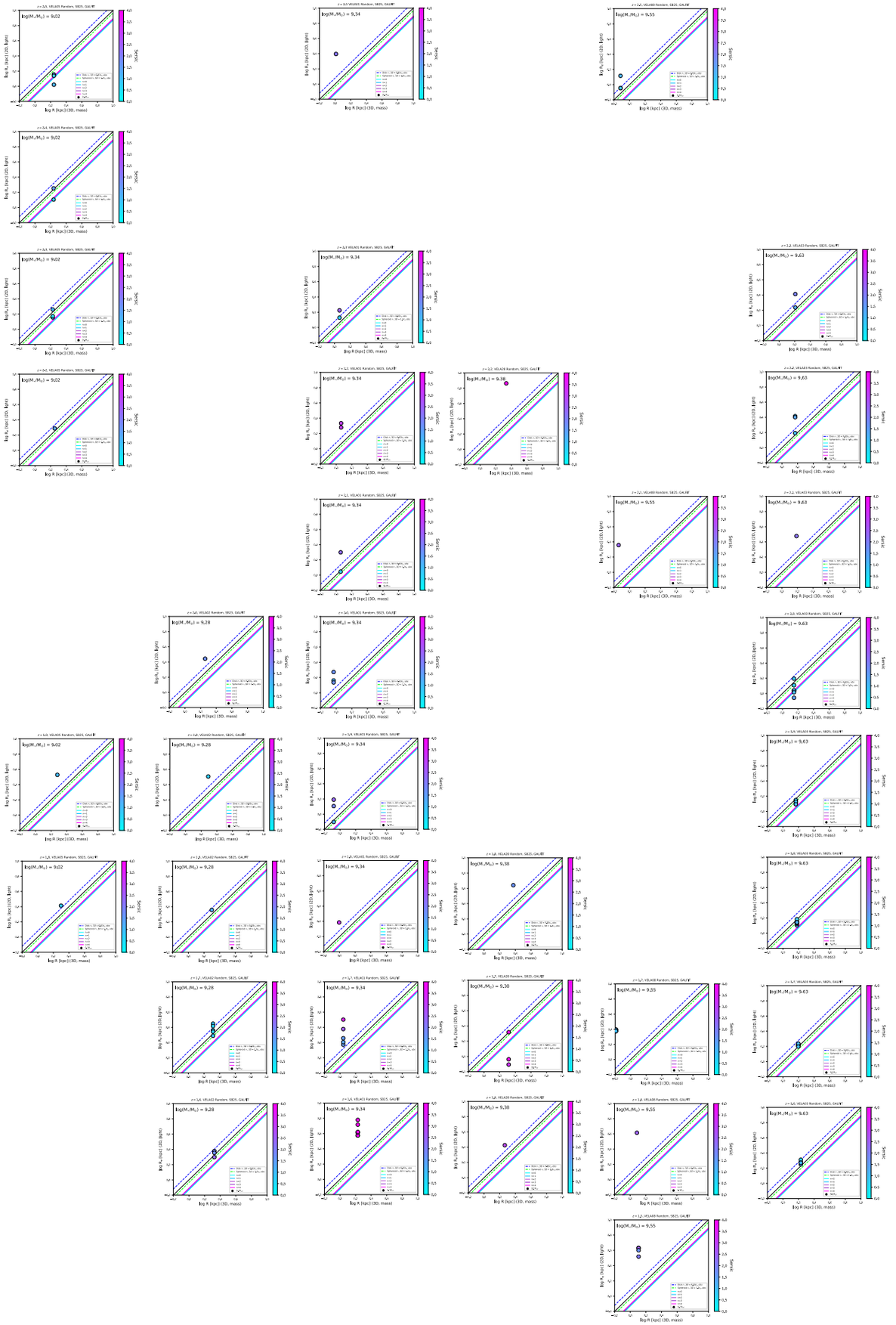
SB27



DEEP-Theory Discussion
CfAO 9 March 2018
2D vs. 3D Galaxy Sizes for individual VELA simulations

Vivian Tang

9 March 2018



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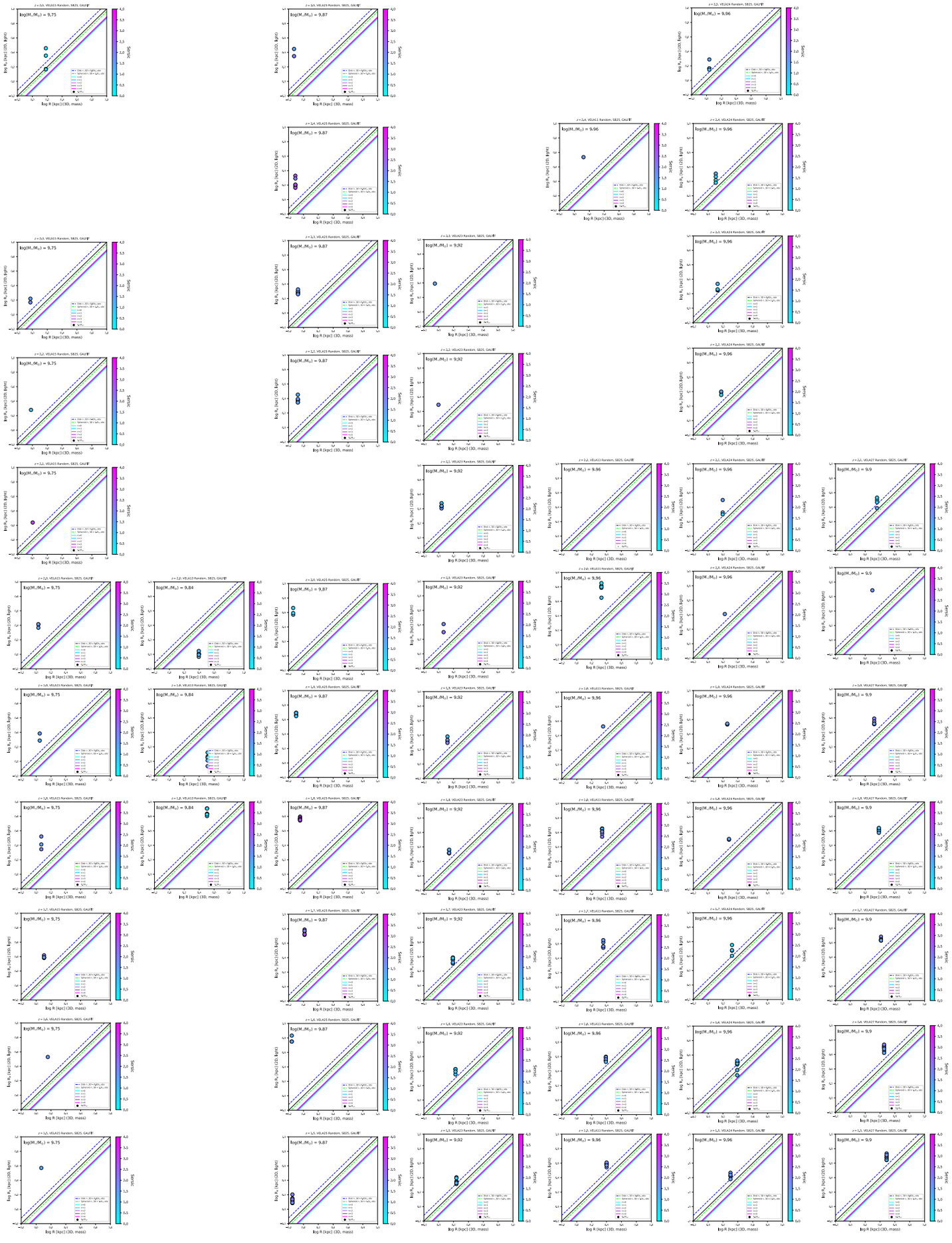

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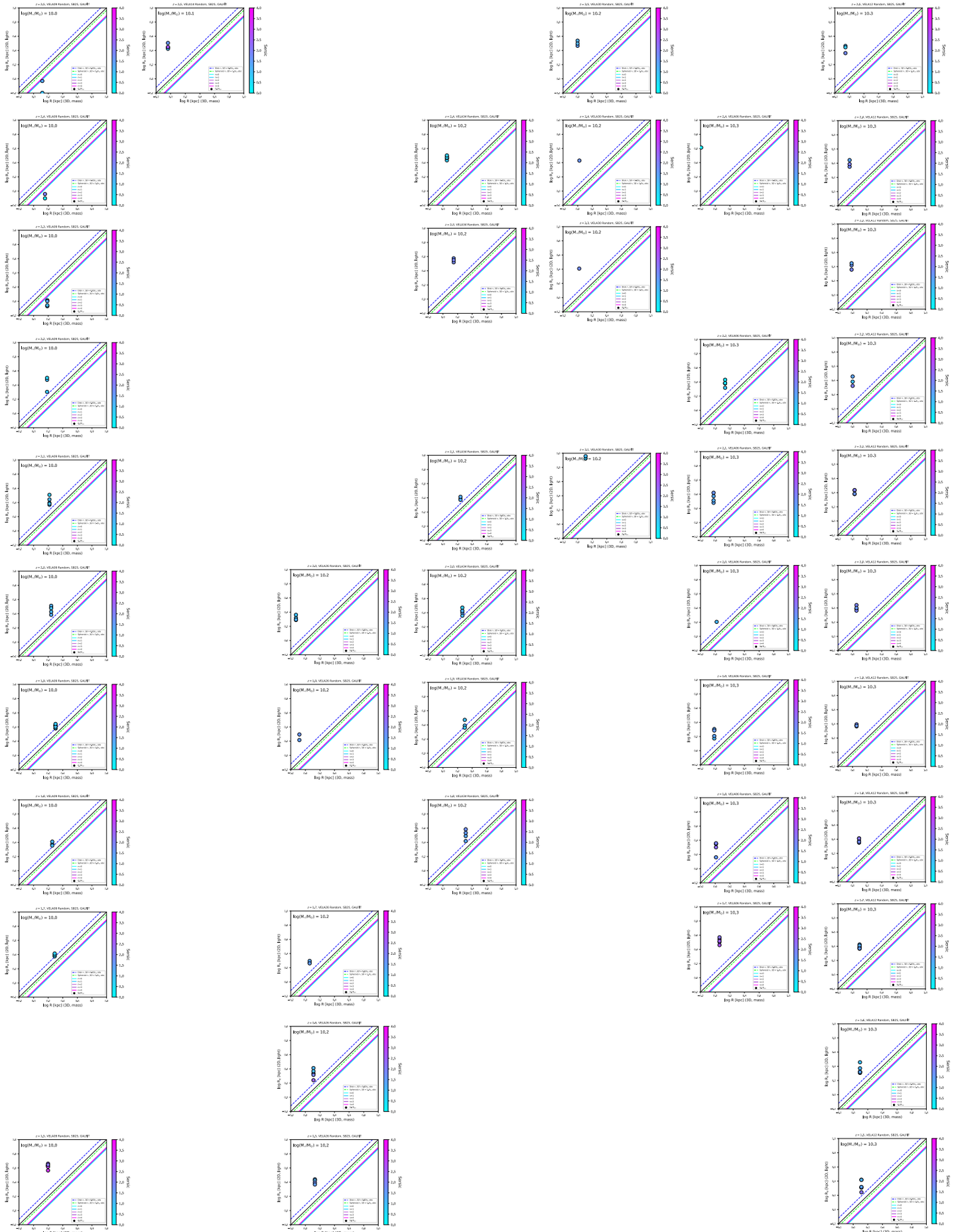

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9 March 2018

DEEP-Theory Discussion
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GALFIT and clump analysis of VELA simulations and comparison with observations — VivianTang, Yicheng Guo, David Koo - DEEP-Theory Meeting -14 April 2017

Mark Mozena PhD Thesis http://physics.ucsc.edu/~joel/MOZENA_Thesis_submitted30Dec2013.pdf

Chapter 2: Comparison of Hydro-ART Simulated Galaxies with Observations

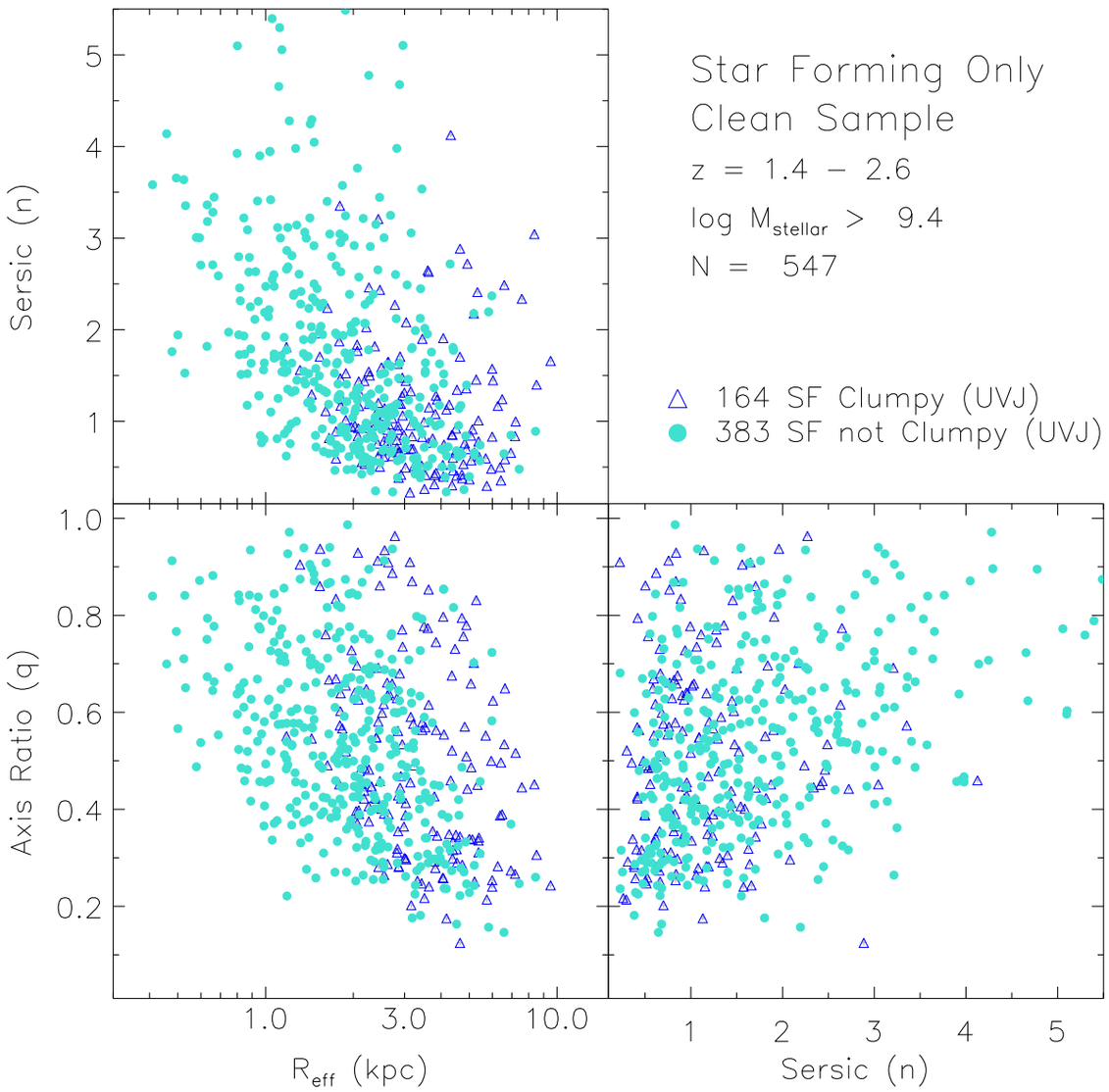


Figure 2.11: Clumpy Star-Forming GOODS-South Galaxies. 30% of z∼2 star-forming galaxies are clumpy. These clumpy systems tend to have larger R_{eff} and lower Sérsic indices.

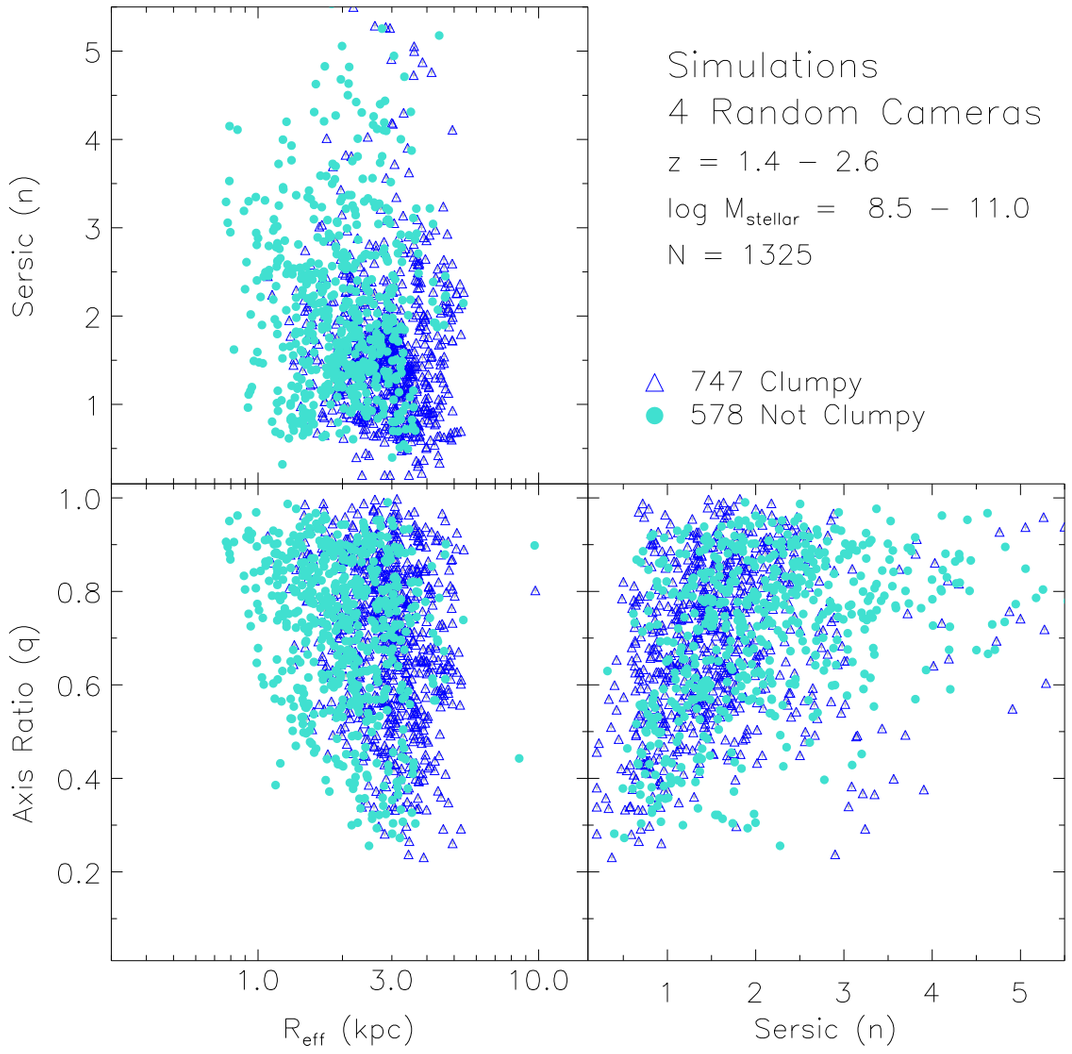
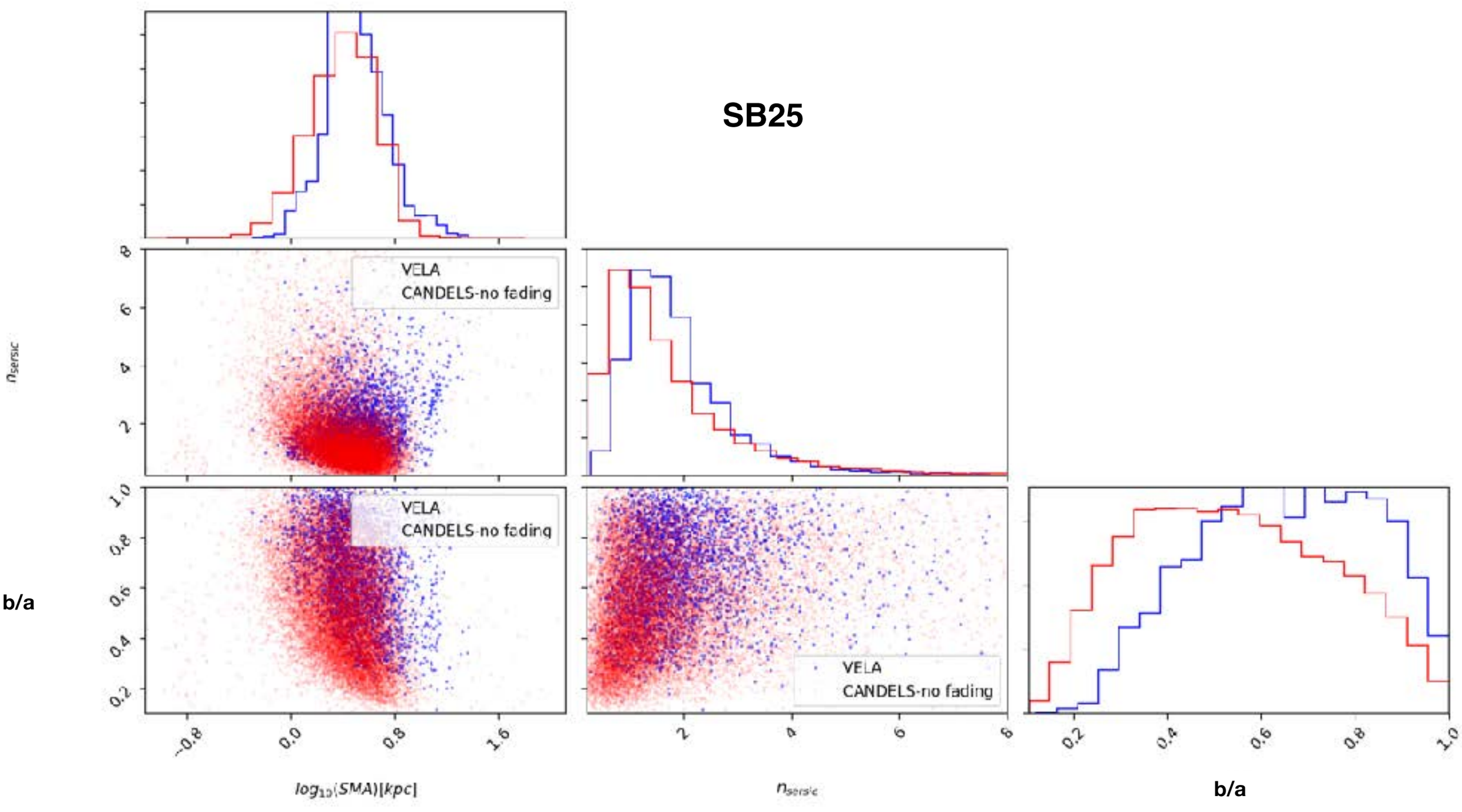


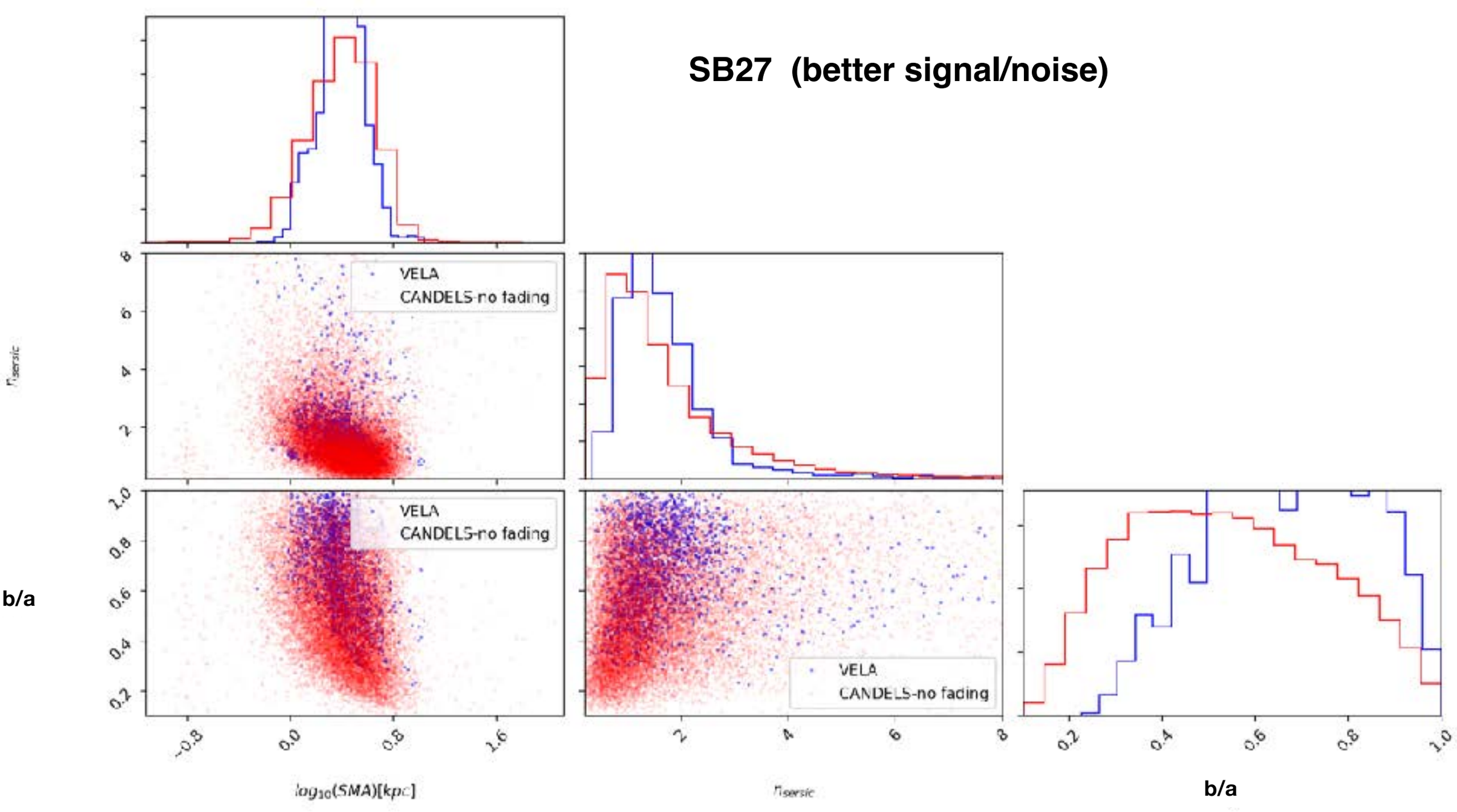
Figure 2.12: Clumpy Hydro-ART Simulations. 56% of the full Hydro-ART sample are clumpy (nearly twice the fraction seen in GOODS-South observations). As was true for the GOODS-South galaxies, the clumpy simulation galaxies are systems with larger R_{eff} and lower Sérsic indices.

Please find the updated plots similar to those in Mozena's thesis for SB25 and SB27 GALFIT results. If you are going to put them into the slides, could you make a note that the python package used to plot this is called Corner? Last time I forgot to make such a note. — Haowen

SB25



Please find the updated plots similar to those in Mozena's thesis for SB25 and SB27 GALFIT results. If you are going to put them into the slides, could you make a note that the python package used to plot this is called Corner? Last time I forgot to make such a note. — Haowen



SB27 (better signal/noise)