

# The 'Valencian-GALAXY-zoo'

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## Abstract



-We present a sample of the most massive galaxies (M\* >10^11Mo) found at z=0 in a fully cosmological simulation performed with MASCLET (Mesh Adaptative Scheme for CosmologicaL structurE evoluTion) . -The upper (lower) pannel shows the merger (quiet) galaxies depending on elipticity ( $\epsilon$ ) and velocity vs velocity-dispersion (v/ $\sigma$ )

-We use the ssp MILES models to make our galaxies bright and to study some observables of our fully cosmological synthetic galaxies.



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|--------|--|--|--|--|
| 1      | $R_s = 15kpc$  | $\underline{R_e=1}1 kpc$   | $\underline{R_e} = 7kpc$                   | $\mu_R$  |
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|        | Contraction of the   |  |  | 20 -   |
|        | $\underline{R_c} = 18 k pc$  | $\underline{R_r} = 8kpc$   | $\underline{R_{e}} = 11 kpc$               | 21 -   |
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|        |  |  |  | 23 -   |
|        | R.=19kpc_  | $R_s = 14 kpc$   | <u>R<sub>c</sub> = 9kpc</u>                |  |
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| 1      | $R_{c} = 11 kpc$   | $R_r = 6kpc$   | R <sub>r</sub> = 8kpc                      | $\mu_B$  |
| 1      | <u>R. = 11kpc</u>  | $\underline{R_c} = 6kpc$   | <u>R.</u> = 8kpc                           | $\mu_R$  |
|        | <u>R. = 11kpc</u>  | $\underline{R} = 6kpc$   | <u>R-</u> =8kpc                            | $\mu_R$<br>18 -  |
|        | <u>R. =</u> 11kpc  | $\underline{R} = 6 kpc$  | <u>R-=</u> 8kpc                            |  |
|        | <u><i>R. = 11kpc</i></u>   | <u>R.</u> = 6kpc   | <u><i>R<sub>c</sub></i></u> = δ <i>kpc</i> | 18 -   |
|        | <u>R. = 11kpc</u>  | <u>R.</u> =6kpc  | <u>R.</u> = 8kpc                           | 18 -   |
|        | <u>R. = 11kpc</u><br><u>R. = 12kpc</u>   | <u>R</u> = 6kpc<br><u>R</u> = 10kpc  | <u>R_</u> = 8kpc<br><u>R_</u> = 7kpc       | 18 -<br>19 -<br>20 -   |
|        |  |  |  | 18 -<br>19 -   |
| > 3    |  |  |  | 18 -<br>19 -<br>20 -<br>21 -   |
|        |  |  |  | 18 -<br>19 -<br>20 -   |
| ω      |  |  |  | 18 -<br>19 -<br>20 -<br>21 -   |
| ω      | <u>R-=12kpc</u>  | <u>R. = 10kpc</u>  | R.= 7kpc                                   | <ul> <li>18 -</li> <li>19 -</li> <li>20 -</li> <li>21 -</li> <li>22 -</li> <li>23 -</li> </ul>               |
| ω      |  |  |  | 18 -<br>19 -<br>20 -<br>21 -<br>22 -   |
| ω      | <u>R-=12kpc</u>  | <u>R. = 10kpc</u>  | R.= 7kpc                                   | <ul> <li>18 -</li> <li>19 -</li> <li>20 -</li> <li>21 -</li> <li>22 -</li> <li>23 -</li> <li>24 -</li> </ul> |
| ω      | <u>R-=12kpc</u>  | <u>R. = 10kpc</u>  | R.= 7kpc                                   | <ul> <li>18 -</li> <li>19 -</li> <li>20 -</li> <li>21 -</li> <li>22 -</li> <li>23 -</li> </ul>               |
| ω      | <u>R-=12kpc</u>  | <u>R. = 10kpc</u>  | R.= 7kpc                                   | <ul> <li>18 -</li> <li>19 -</li> <li>20 -</li> <li>21 -</li> <li>22 -</li> <li>23 -</li> <li>24 -</li> </ul> |

 $> v/\sigma >$ 

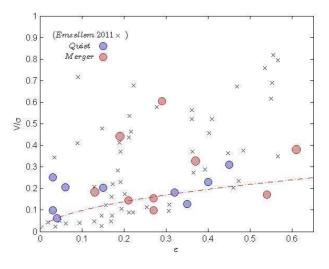
# Simulation

\* The simulation described in this poster was performed with the cosmological code MASCLET (Quilis 2004). The initial conditions were set up at z = 50, using a CDM transfer function, for a cube of comoving side length 44Mpc. The computational domain was discretised with 1283 cubical cells, using a maximum of seven levels of refinement, which gives a peak spatial physical resolution of 2.69kpc at z = 0. The star formation is introduced in the MASCLET code following the ideas of Yepes et al. (1997) and Springel & Hernquist (2003).

#### Images

\* Each image is a 100x100 physical kpc square.

- \* To covert physical quantities in observables (put light in the SSP) we adopt the MIUSCAT stellar population synthesis models (Vazdekis et al.2012; Ricciardelli et al.2012)
- The elipticity ( $\epsilon$ ) is measured with the two-dimensional fitting code GALFIT (Peng et al. 2002)
- The velocity vs velocity-dispersion (v/ $\sigma$ ) value is computed using each 1D galaxy velocity and sigma profile.



# **Figure**

\* Our sample galaxy distribution (red and blue circles) in the anisotropy diagram comparing with the distribution of real galaxies (x) from Emsellem et al. 2011 with similar mass range.

### **References:**

Quilis V., 2004, MNRAS, 325, 1426. Vazdekis A., Ricciardelli E., Cenarro A. J., Rivero-González J. G., Díaz-García L. A., Falcón-Barroso J., 2012, MNRAS, 3156 Ricciardelli E., Vazdekis A., Falcón-Barroso J., 2012, MNRAS, 3155 Emselles et al.,2011, MNRAS,414, 888 Peng C.Y,Ho L.C.,Impey C.D.,Rix H-W.,2002,AJ,124,266 Yepes G., Kates R, Khokhlov A. Klypin A., 1997, MNRAS, 284, 235