## From initial conditions to galaxies

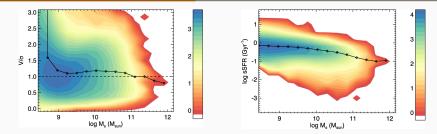
Corentin Cadiou March 29, 2018

#### Introduction

Theory

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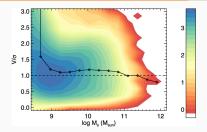
### **Classifying galaxies**



**Figure 1:**  $M \text{ vs } v/\sigma$ 

**Figure 2:**  $M \text{ vs } v/\sigma$ 

### **Classifying galaxies**



(<sup>1</sup>,<sup>1</sup>,<sup>1</sup>)<sup>1</sup> <sup>1</sup>,<sup>1</sup>,<sup>1</sup>)<sup>1</sup> <sup>1</sup>,<sup>1</sup>)<sup>1</sup> <sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup> <sup>1</sup>,<sup>1</sup>)<sup>1</sup> <sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup> <sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup> <sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup> <sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup>1</sup>)<sup>1</sup>,<sup></sup>

Figure 1:  $M vs v/\sigma$ 

#### Figure 2: $M \operatorname{vs} v / \sigma$

#### A few parameters

- 1. M<sub>200</sub>
- 2. color / SFR
- 3. elliptical / spiral ?

4. ...

• On space – image of H-AGN

- On space image of H-AGN
- On z show redshift evolution / ref

#### Theory

- (too?) simplistic
- hard to write, quick to run
- enlightening

### Simulation

- "easy" to write, costly to run
- "full" physics
- not much statistics

galaxies live in an environment...

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... and evolve with time!

# Theory

### Modeling galaxies

