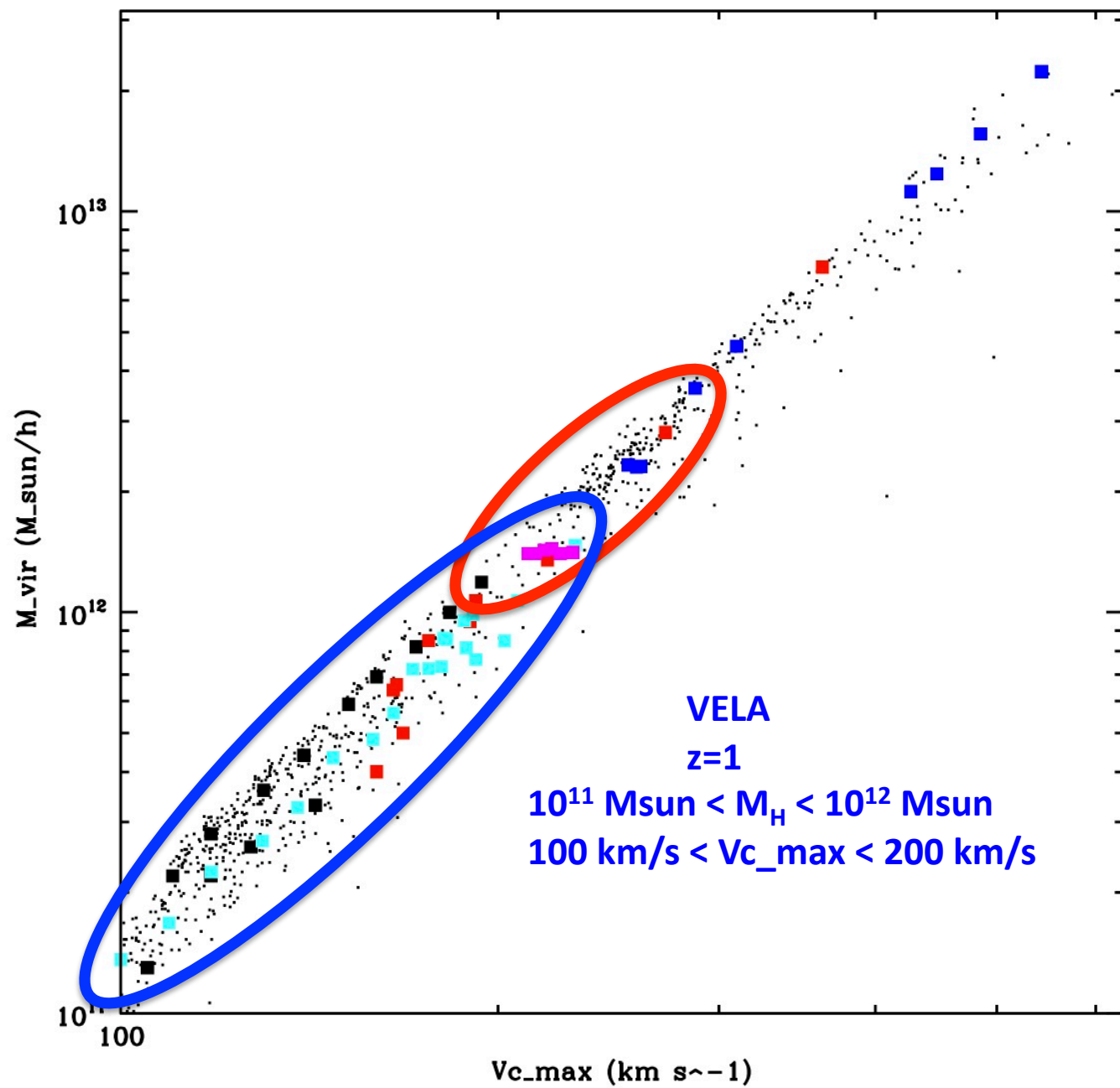


Status of ART simulations: VELA runs

Daniel Ceverino (UAM)

outline

- Properties of the sample: M_{vir} , $V_{\text{c_max}}$
- Currently available runs
- Future runs
- Radiative feedback



VELA runs

- 35 simulations/ halos (randomly selected)
- Twice better resolution than before: 12-35 pc ($M_{\text{DM}}=10^5 M_{\text{sun}}$)
- Different box sizes: 10 Mpc/h – 40 Mpc/h

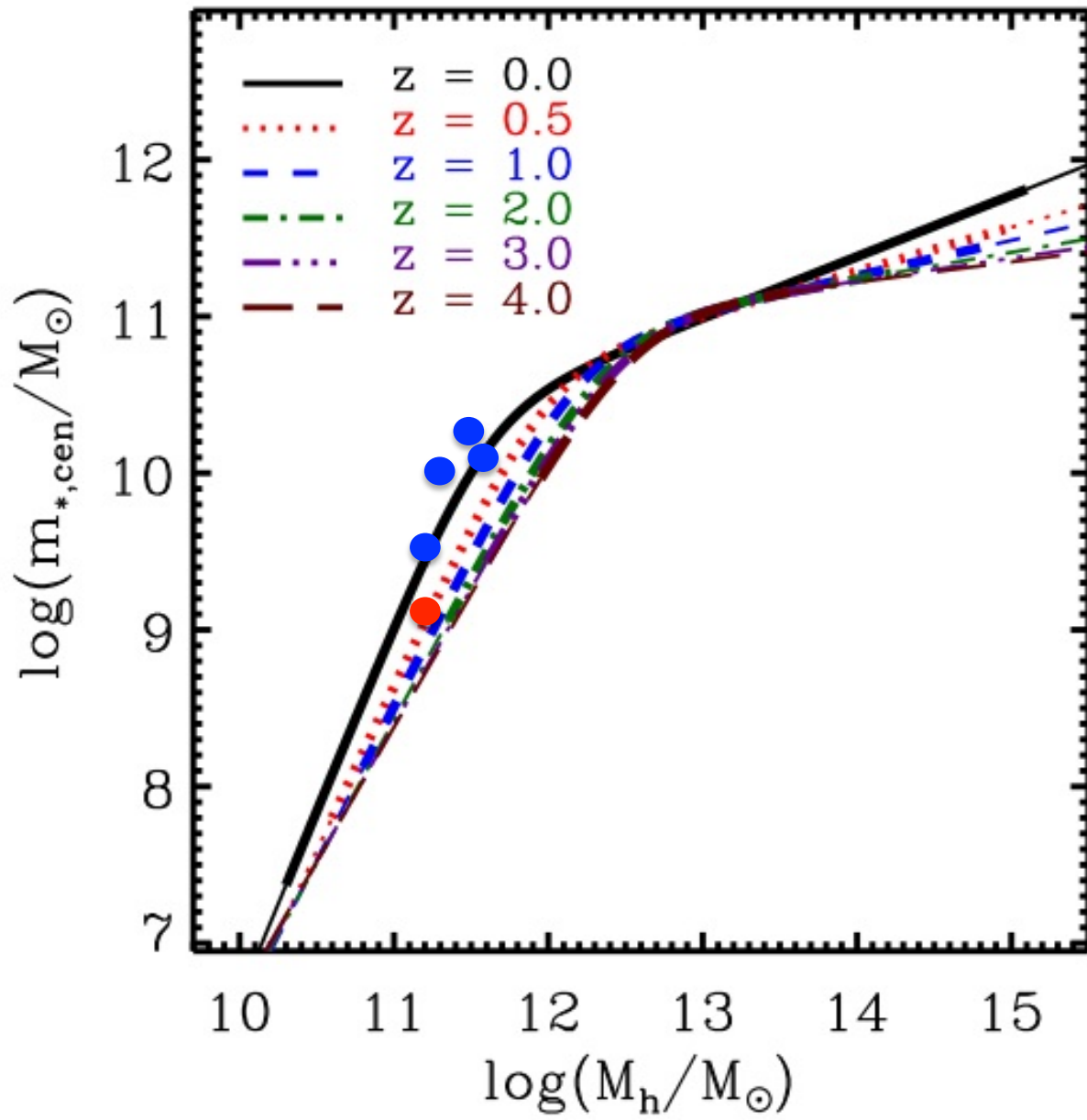
Completed runs

- Same feedback model: Thermal feedback
- Lower star formation efficiency
- Chabrier IMF

- 30/35 have reached $z < 3$ (almost all)
- 26/35 have reached $z < 2$
- 18/35 have reached $z < 1.5$ (half)

Currently running

- Same set of ICs
- New feedback model: Radiation feedback
- Test case: VELA 13 has reached $z=2$

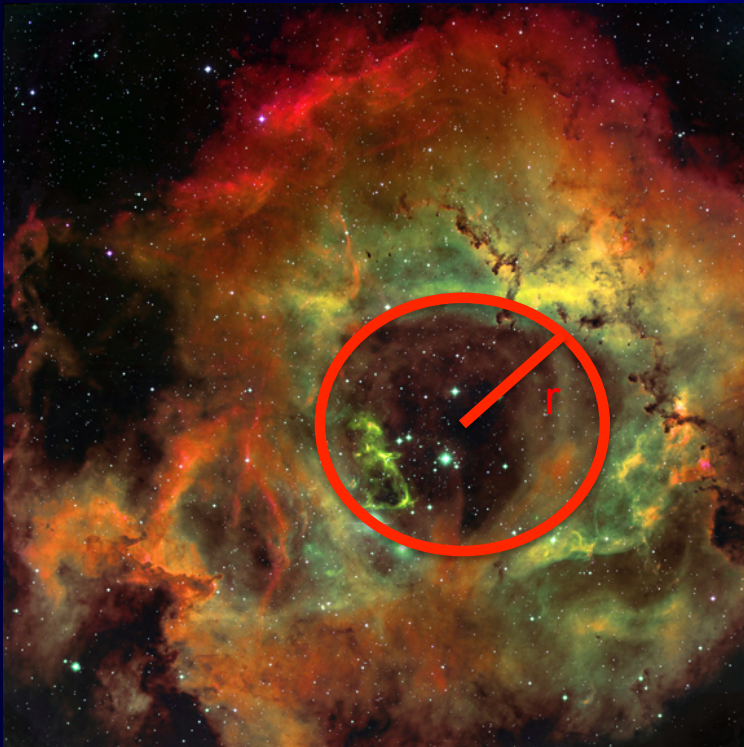


Moster+ 2012

Radiative feedback

Rosette Nebula

40 pc



No Supernova explosion yet
Stellar winds
Radiation pressure

$$P_{\text{rad}} = L / (r^2 c)$$

For column densities $> 10^{21} \text{ cm}^{-2}$
During 5 Myr

Summary

- VELA runs: 35 simulations of $M_H=10^{11}-10^{12}$ Msun at $z=1$
- Runs completed with standard SN feedback
- VELA 13 completed with radiation feedback
- The rest of the sample is running with radiation feedback.