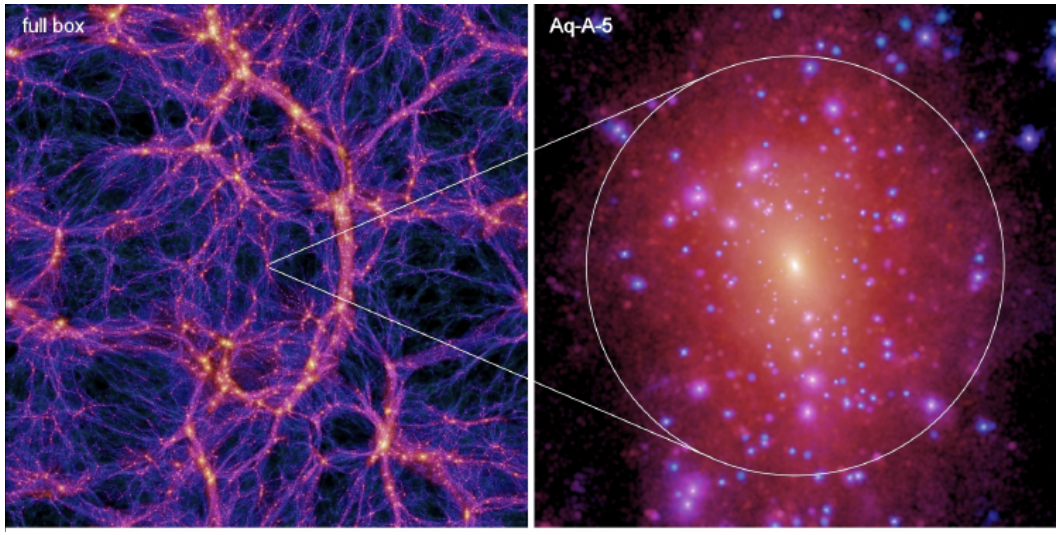
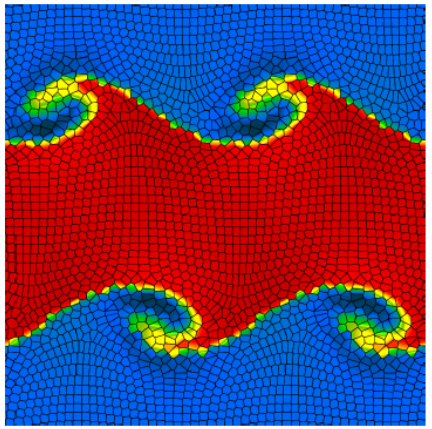
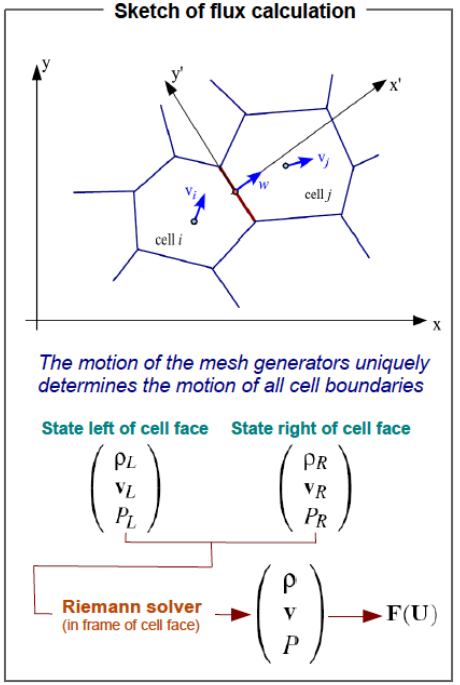
The Auriga Project: *cosmological-zoom simulations of Milky Way analogues*



Simulated with the moving-mesh code AREPO (Springel 2010):

Low numerical viscosity, low advection errors





General procedure:

- Halo selection criteria at z=0 from parent EAGLE DMO box
  - $5\times10^{11} < M_{vir}(z=0) < 2\times10^{12}$
  - weak isolation criterion
    (located $>9R_{vir,i}$ of any *i-th* halo more than 3% of target halo ***at z=0***)
- Go back to z=128, increase resolution of region around z=0 halo particles
- Add gas elements
- Re-run simulation with ***galaxy formation model***

Galaxy formation model

- *Star formation*
- *Reioinisation (z=6)*
- *Metal line cooling*
- *Mass & metal enrich. (Type Ia & AGB)*
- *SNII feedback*
- *Black hole growth*
- *Radio & quasar AGN feedback*
- *Magnetic fields*

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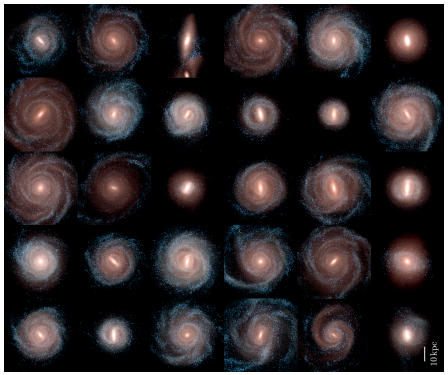
Completed simulations:

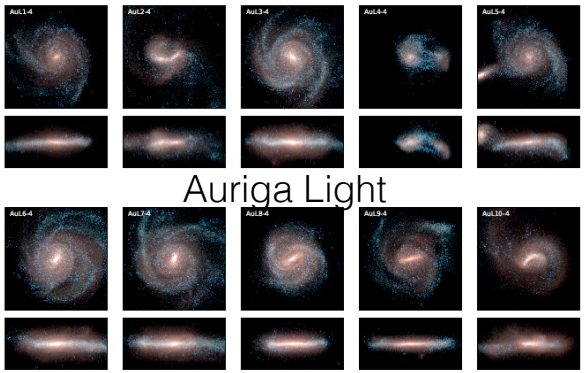
- 40 sims @ standard res (level 4): star mass res ~10^4 Msun, soft. ~ 300pc



$1x10^{12} < M_{vir}(z=0) < 2x10^{12}$

(Auriga, 30 haloes, Grand+17)

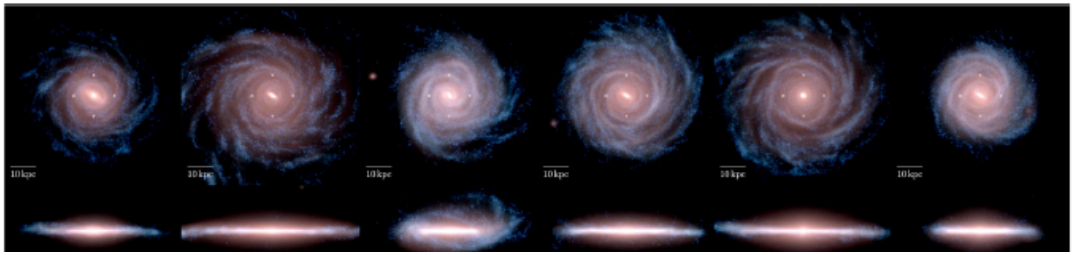
+

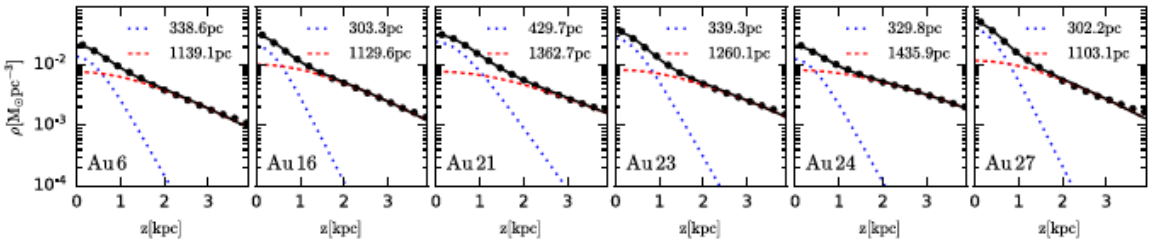


Auriga Light

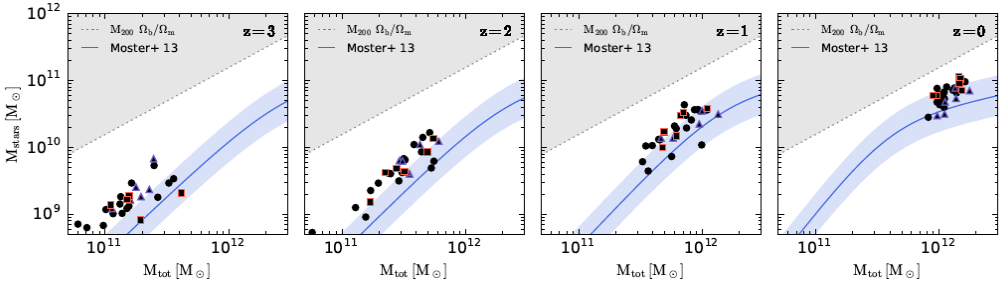
$5x10^{11} < M_{vir}(z=0) < 1x10^{12}$

- 6(+1) sims @ level 3 res: star mass res ~10^3 Msun, soft. ~ 100pc

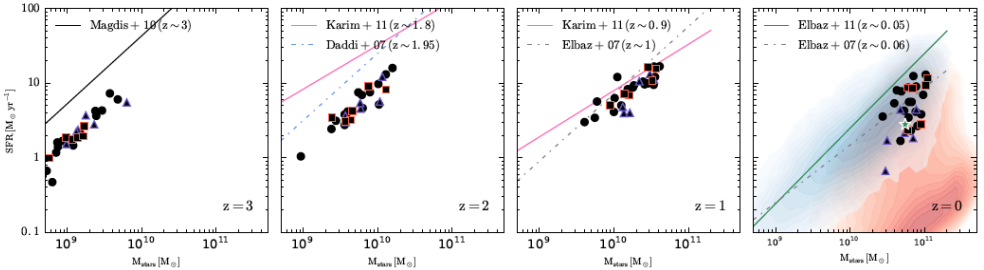




Simulations evolve parallel to the stellar mass-halo mass AM relation



SFR vs. Mstar generally relation well reproduced over time



Systems generally, **disc-dominated, rotationally supported, star-forming late-type galaxies**