

From Galaxies to Stars: Bridging the Expanse

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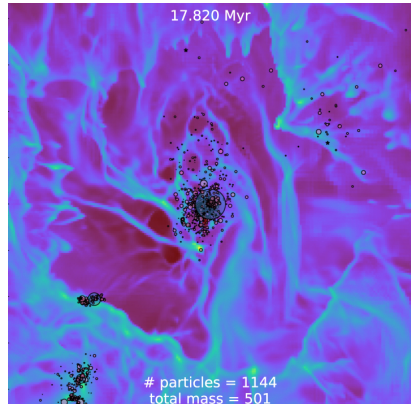


Clouds in Reality and... Not

What's the difference?



NASA; Carina Nebula



Wall et al. 2020

The Big Problems

Resolution & Initial Conditions

- Self consistent galactic scale simulations with resolution down to sub-tenth parsec scales and include Nbody individual stellar dynamics and individual stellar feedback all at once? A little tough.

The Big Problems

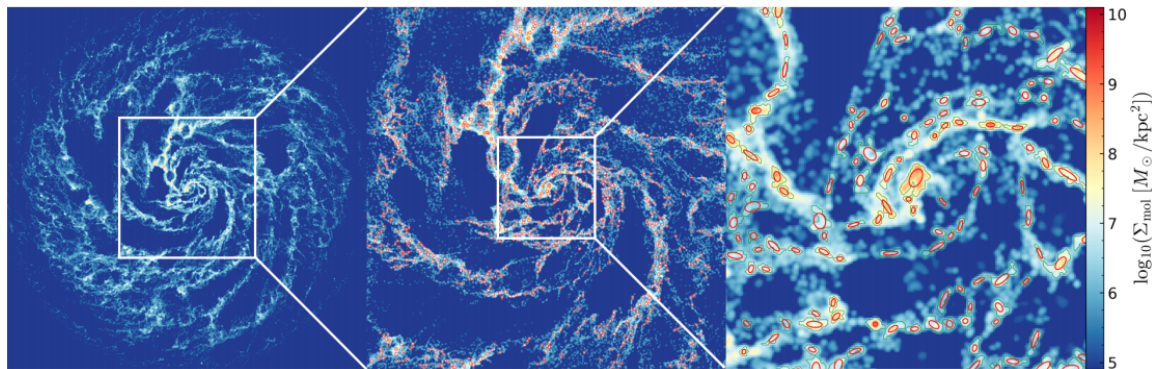
Resolution & Initial Conditions

- Self consistent galactic scale simulations with resolution down to sub-tenth parsec scales and include Nbody individual stellar dynamics and individual stellar feedback all at once? A little tough.
- Creating our own isolated clouds from scratch? “Creative liberties...”

Stars From “Realistic” Clouds

- Clouds that formed under the influence of galactic dynamics.
- Track dynamics and feedback of individual stars.
- High resolution to quantify star-gas interactions.

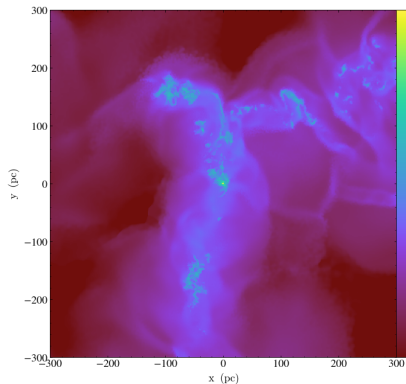
Clouds from Galactic Simulations



GMC identification [Li, H. et al. 2020]

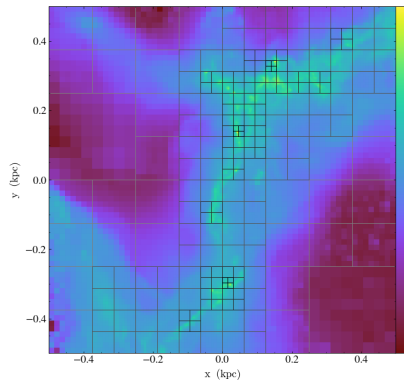
From AREPO to FLASH

(1st attempt)



Cloud from raw AREPO data

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Cloud-in-cell mapping onto AMR
FLASH grid

Voronoi Mesh to AMR Grid

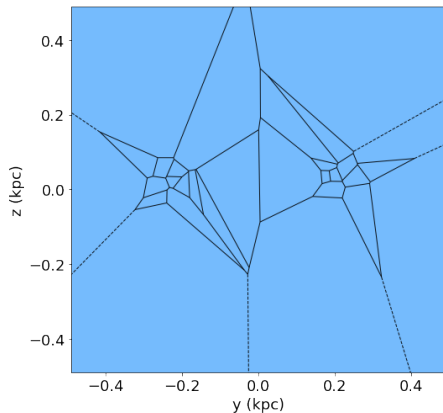


Figure: Voronoi mesh from 20 points

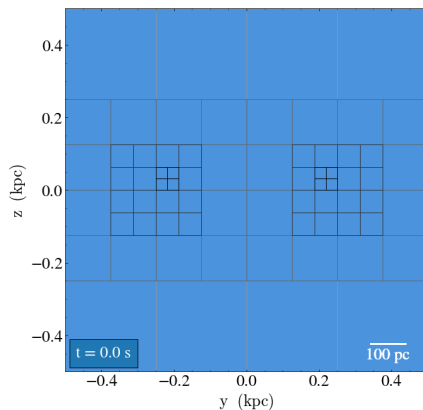


Figure: AMR grid from 20 points

VorAMR: Logic path

