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Standard model of cosmology: **Lambda-CDM**

--> Explains many observations on large scales well

--> Discrepancies on small scales

Possible solution: **Self-Interacting** DM (SIDM)

Scattering rate proportional to local DM density

Look at **galaxy clusters!**

Galaxies in clusters:
mass loss due to **tidal stripping**

SIDM: DM particles **scattered out** by
cluster DM --> enhanced mass loss

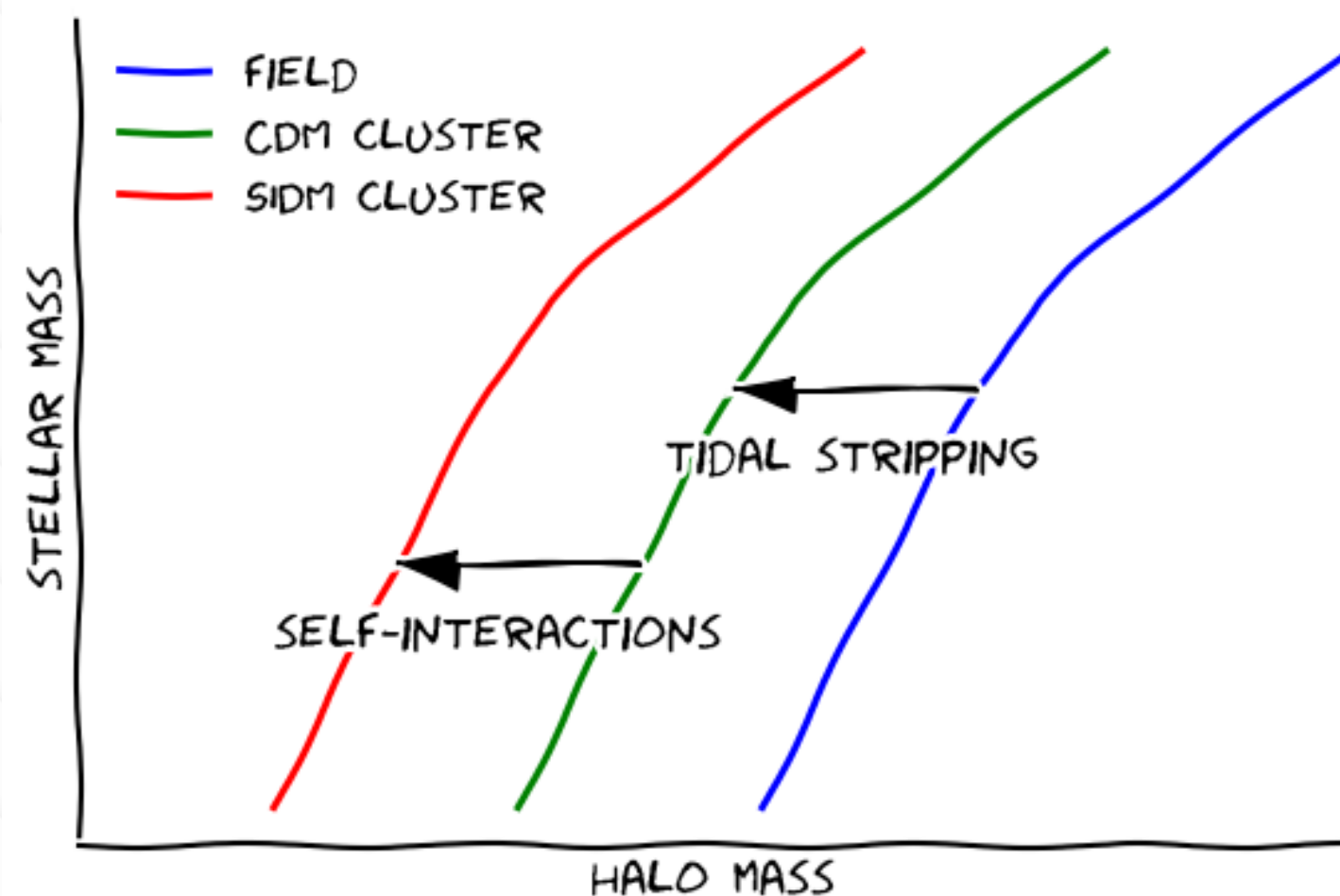
Stellar mass similar --> SHMR changes?

C-EAGLE hydrodynamical
simulations

CDM & SIDM ($1 \text{ cm}^2/\text{g}$)

Same initial conditions

--> can directly compare subhaloes



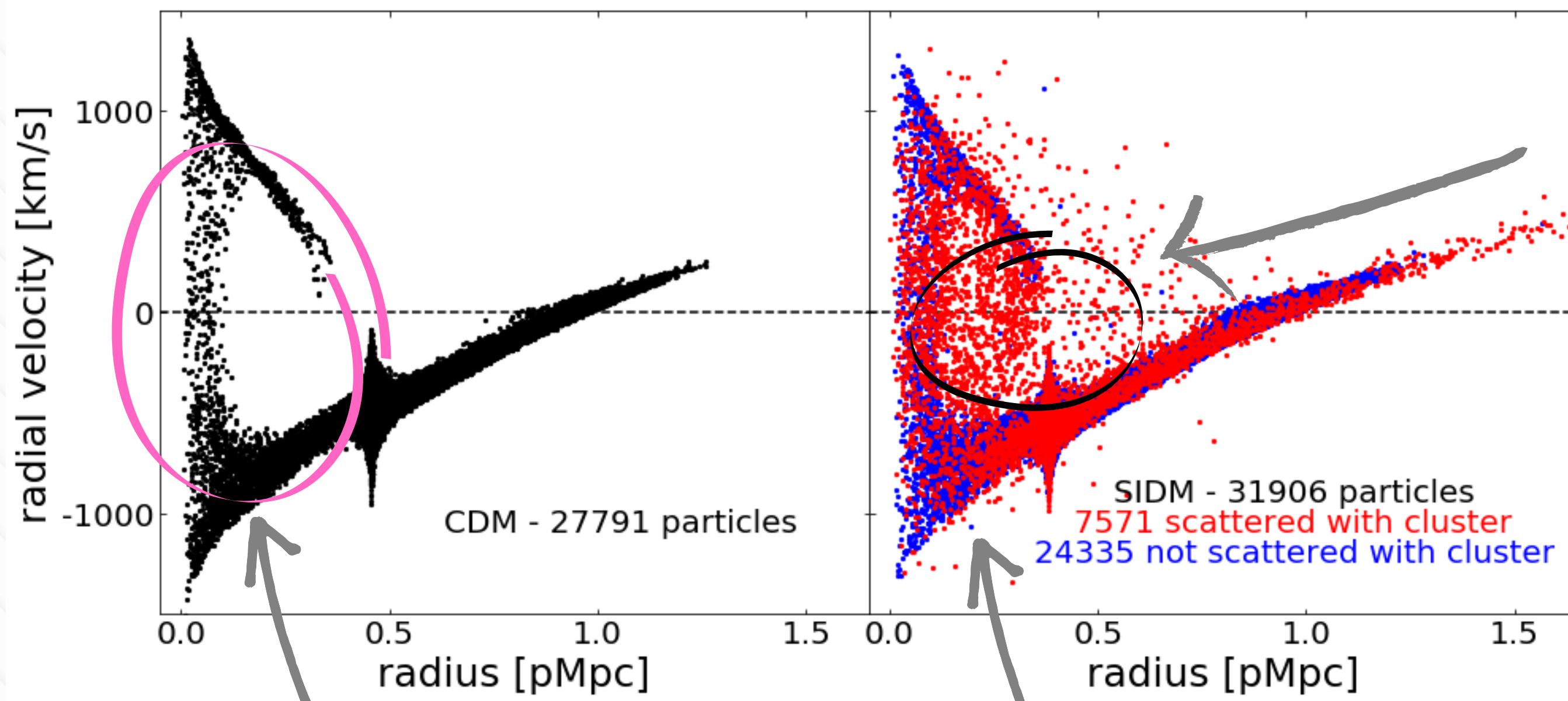
Compare DM loss of subhaloes
in CDM & SIDM

Is there a clear & observable difference?

Simulations: follow particles in time
--> study *phase space* properties



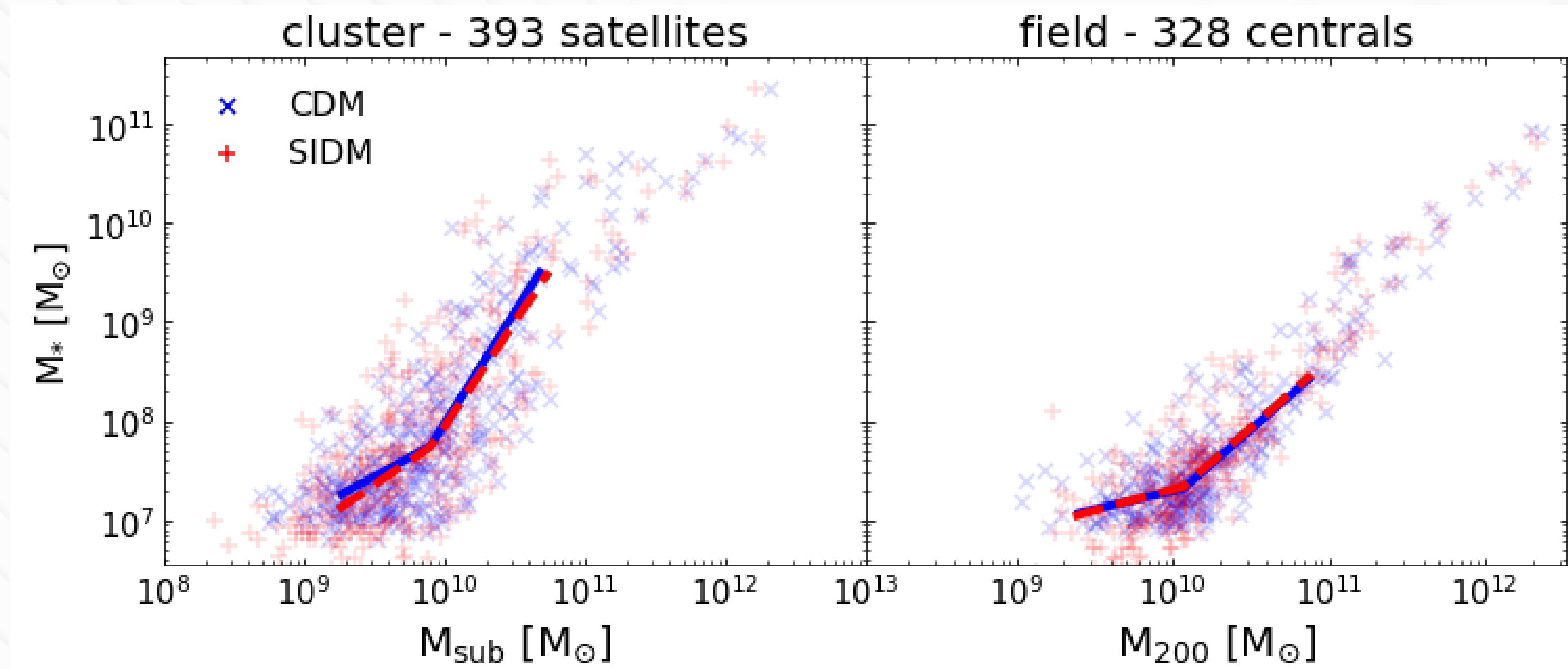
tidal stripping and
evaporation can be
differentiated



SIDM particles
scattered out of
subhalo

Tidally stripped material follows similar paths

Visible effect in phase space, *however*,
When matching subhaloes & comparing median SHMR...



Very small differences: $\sim 1\%$
Hard to observe!