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 \textbf{tidal stripping}

SIDM: DM particles \textbf{scattered out} by cluster DM \textless{}\textgreater{} enhanced mass loss

Stellar mass similar \textless{}\textgreater{} SHMR changes?

C-EAGLE hydrodynamical simulations
CDM & SIDM (1 cm$^2$/g)

Same initial conditions
\textless{}\textgreater{} can directly compare subhaloes

\begin{itemize}
  \item Compare DM loss of subhaloes in CDM & SIDM
  \item Is there a clear & observable difference?
\end{itemize}
Simulations: follow particles in time
--> study phase space properties

Tidally stripped material follows similar paths

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: ~1%  
Hard to observe!