Inhomogenous chemical Evolution of the Milky Way
The cosmic life cycle

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The model

Total time: $1.35 \times 10^9$ yrs
Timestep: $1 \times 10^6$ yrs
Main loop

- Choose SF cells randomly
- Read local density
- SF (coupled to density) with IMF
- Add local metal enrichment to stars
- Have stars reached end of life time?
- Simulate explosion (extrapolate matter to nearby cells)
Stars

• $M<8-10M_{\text{Sol}}$: Not producing r-process elements, but lock up ISM for the duration of their life time

• $M>8-10M_{\text{Sol}}$: Star is doing ccSN

• NSM: Possibility $P_{\text{NSM}}$ for a double star (HMS) system to also do NSM-Event

• Ia: Possibility $P_{\text{SNIa}}$ for a double star system (IMS) to do SNIa event
ρ-Evolution
Test with $\alpha$-elements group
SN Ia on!
Experiment with NSM
Compare with obs.
Recalling MHD-ccSN

Experiment with MHD-ccSN
Not enough Eu @ low-met!

Proj301: MHD_Lifetime=1E8yrs
Proj302: MHD_Lifetime=1E6yrs
MHD only (No NSM)!
P_MHD: 1%
Yields: Winteler et al. (2012)
Now: Combine NSM&MHD-ccSN
Finally!
Outlook

- Paper: End of September
- Add mixing procedures (Spiral mixing,…)
- Add more elements
- More sites necessary?!
- Get updated yields (FISH,…)