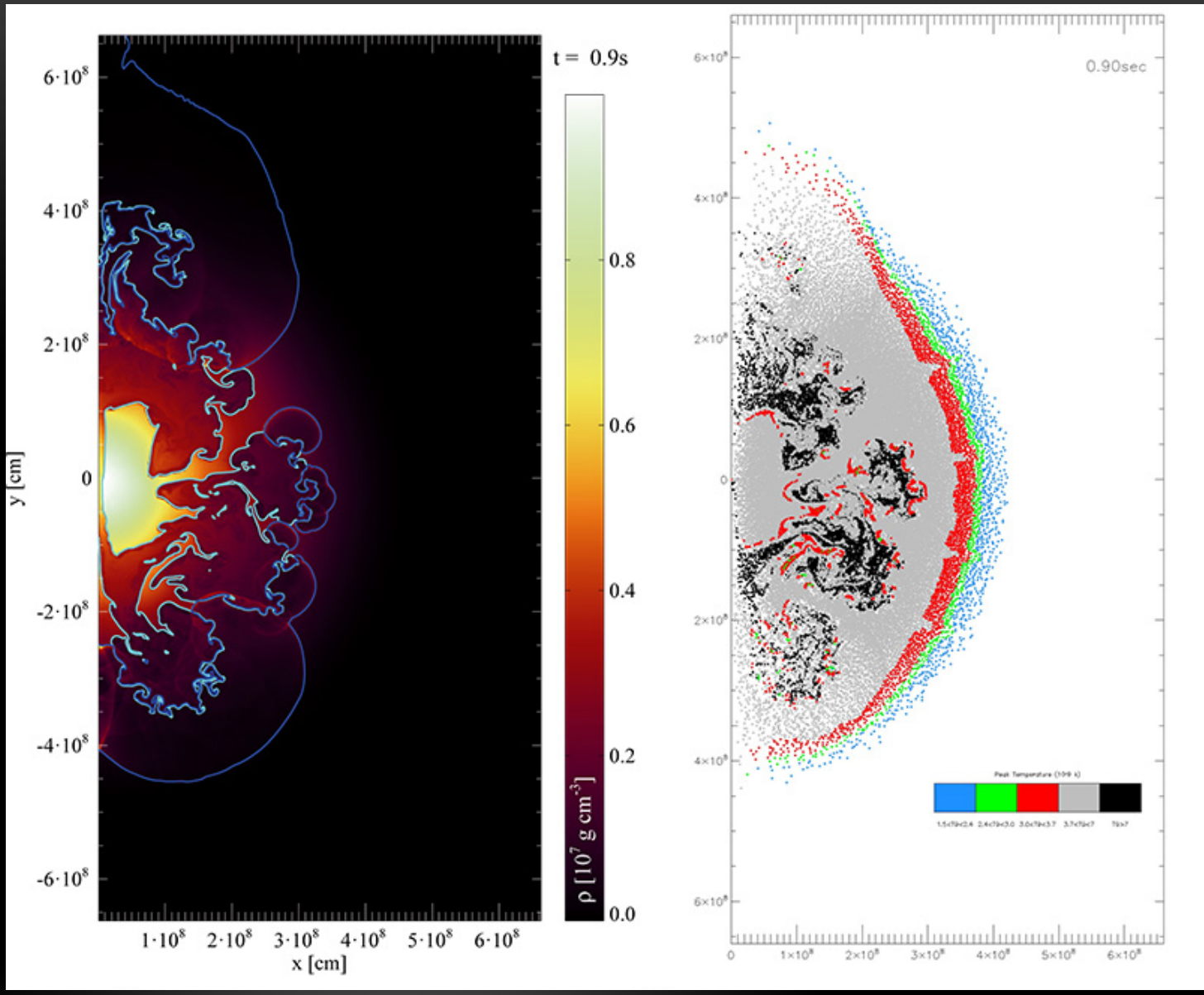
p-process in SNIa (2D vs 3D) and Galactic chemical evolution

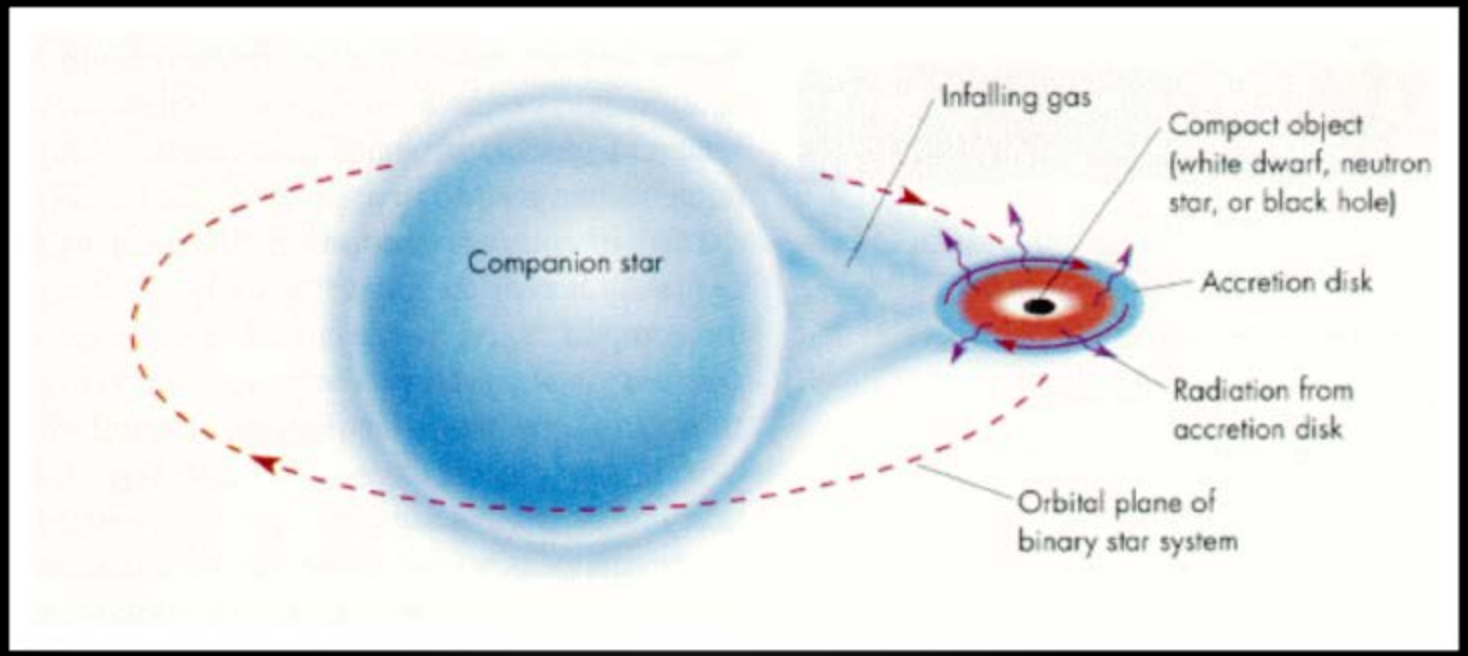
2D model DDT-a, 51200 tracers

Travaglio et al. 2011



s-nucleosynthesis during accretion phase

“Accreting white dwarfs as an alternate or additional source of s-process isotopes” (Iben, ApJ 243, 1981)



Travaglio et al. 2011, ApJ, 739, 93

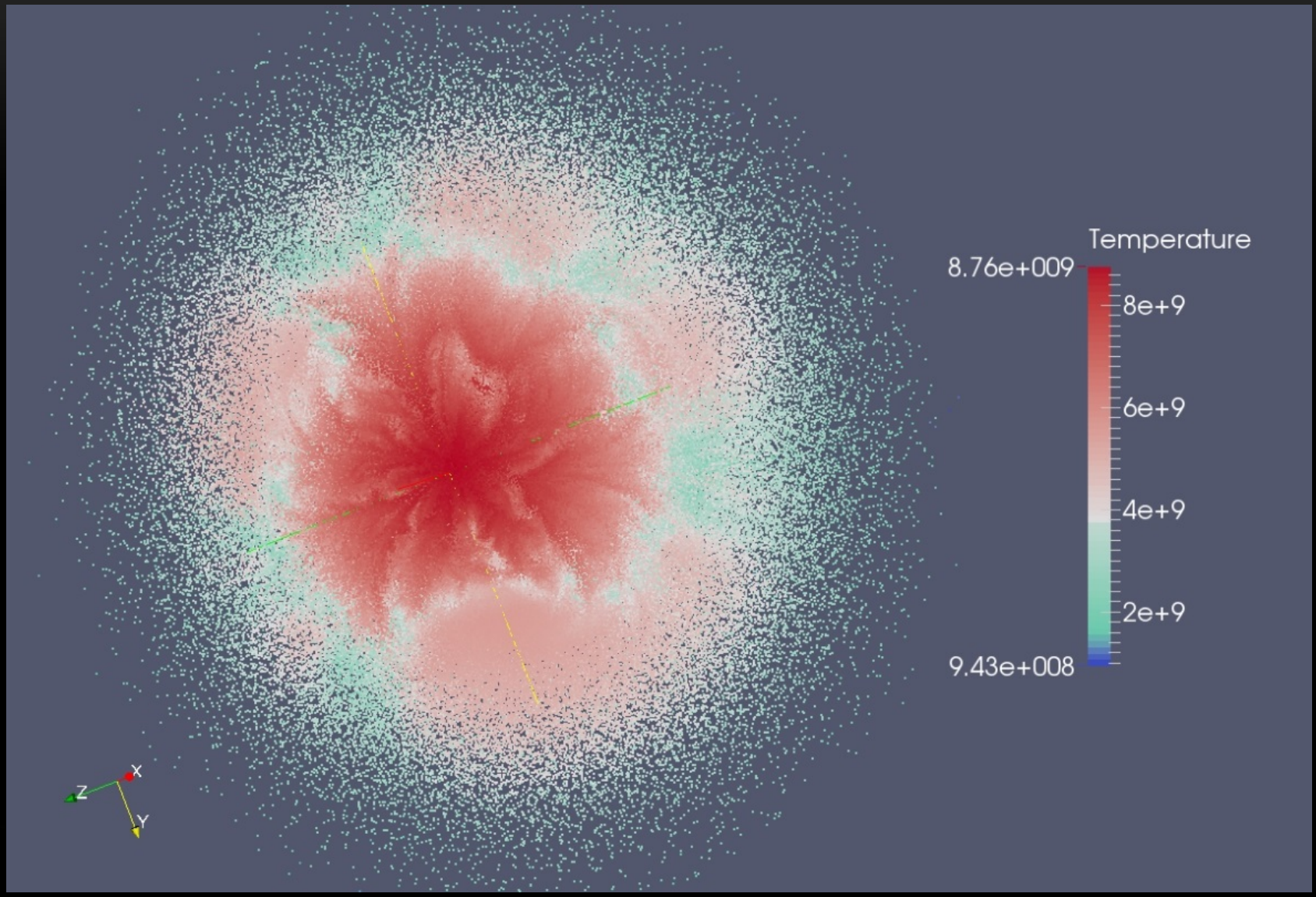
^{113}In, ^{115}Sn are p-only isotopes?
r-process contribution
(Dillmann et al. 2008, Nemeth et al. 1994)?

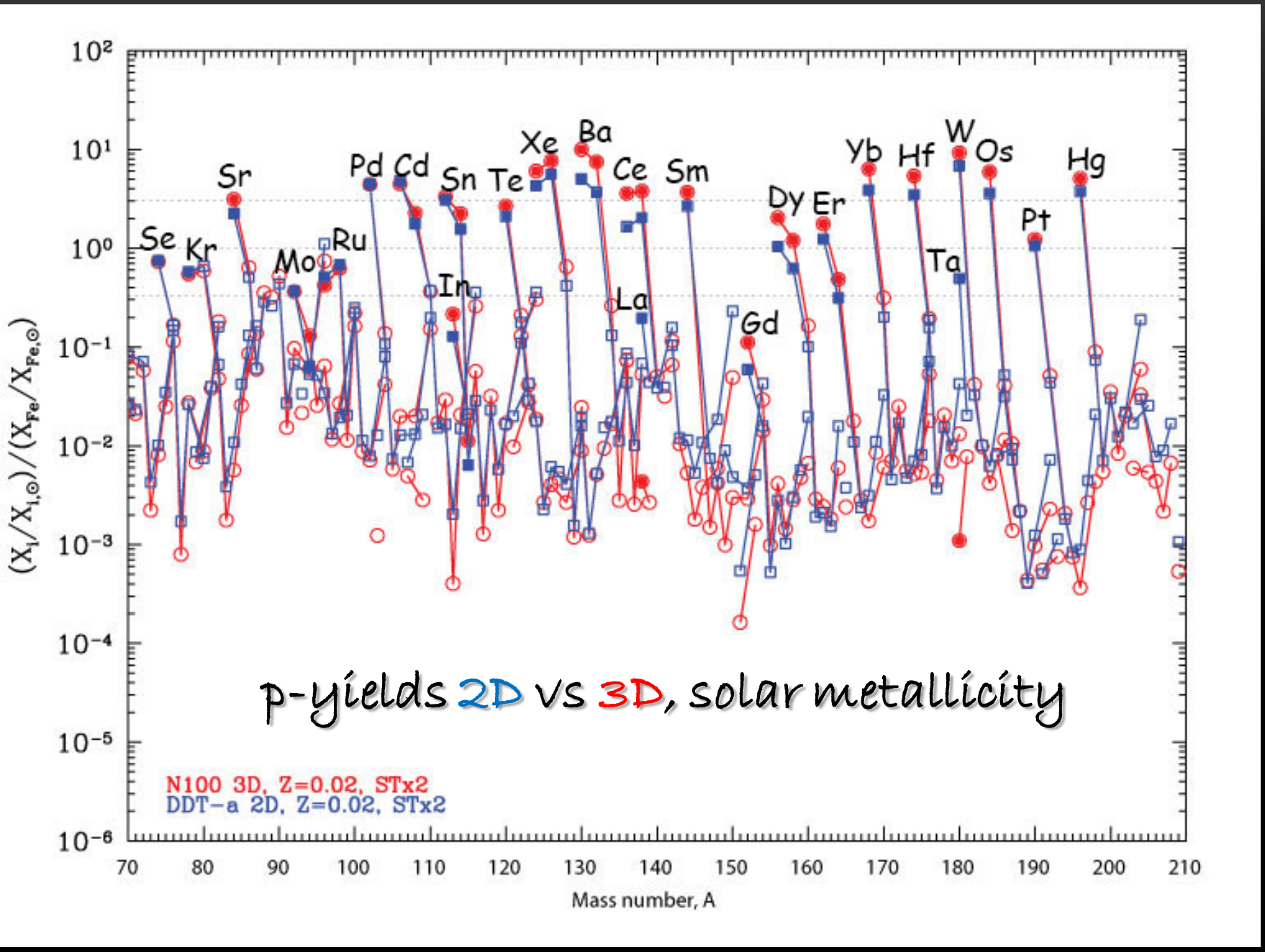
^{138}La produced by neutrino
(Woosley et al. 1990)

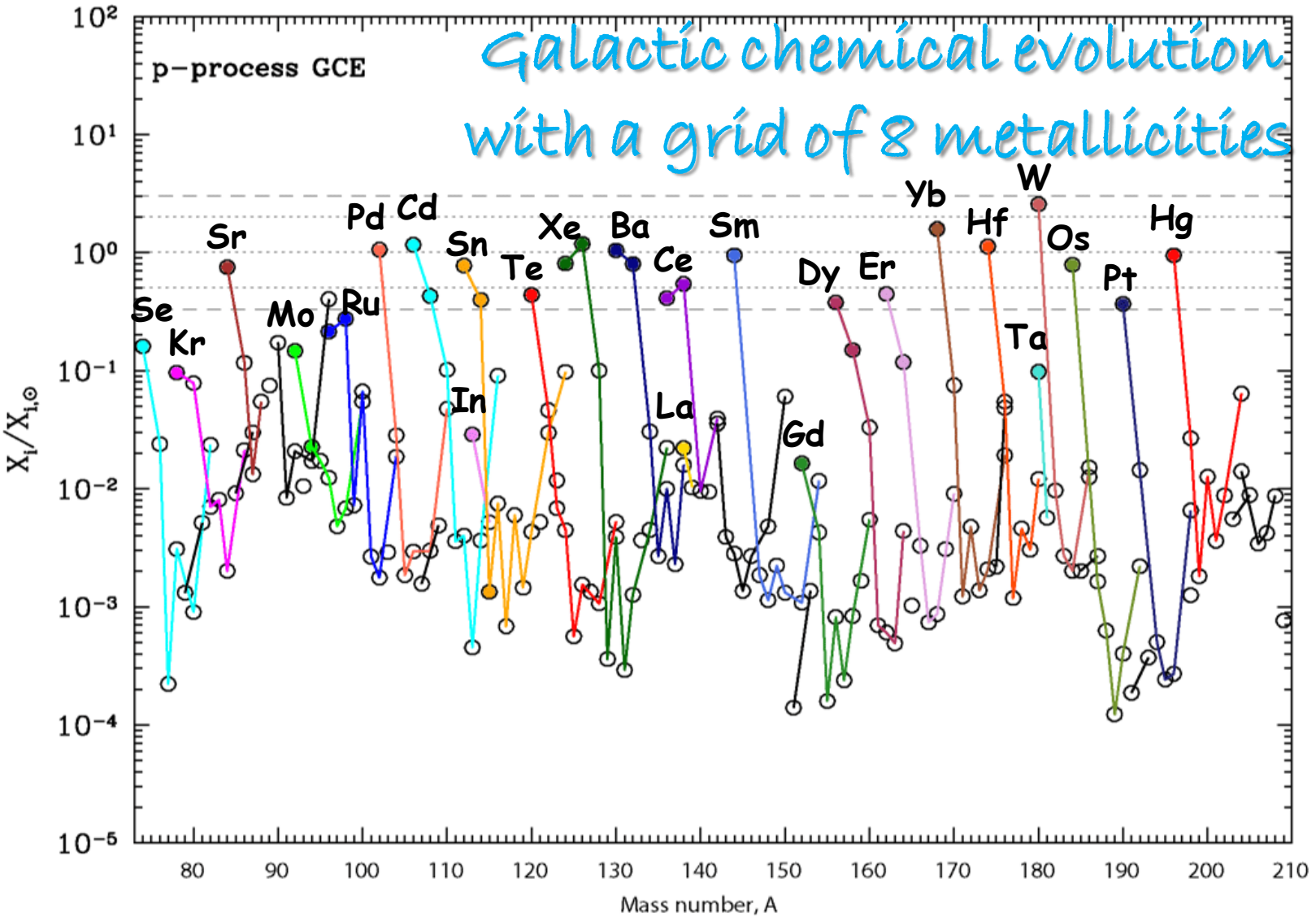
^{152}Gd has large s-process contribution
at solar composition
(Arlandini et al. 1999, Käppeler et al. 2011)

^{180}Ta at least 50% contribution from s-process
at solar composition (Mohr et al. 2007), plus
contribution from neutrino in SNII (Heger et al. 2005)

3D N100 (Seitenzahl et al. 2013), 1 million tracers




p-yields 2D vs 3D, solar metallicity
N100 3D, Z=0.02, STx2
DDT-a 2D, Z=0.02, STx2
Mass number, A
$(X_i/X_{i,\odot})/(X_{Fe}/X_{Fe,\odot})$
Se
Kr
Sr
Mo
Ru
Pd
Cd
In
Sn
Te
Xe
Ba
Ce
La
Sm
Gd
Dy
Er
Yb
Hf
Ta
W
Os
Pt
Hg



Travaglio et al. (2014, in press)

Open problems

- Models for mass accretion phase and s-seeds production
- Nuclear physics uncertaintiens
- SNIa progenitors: sub-Ch, WD mergers