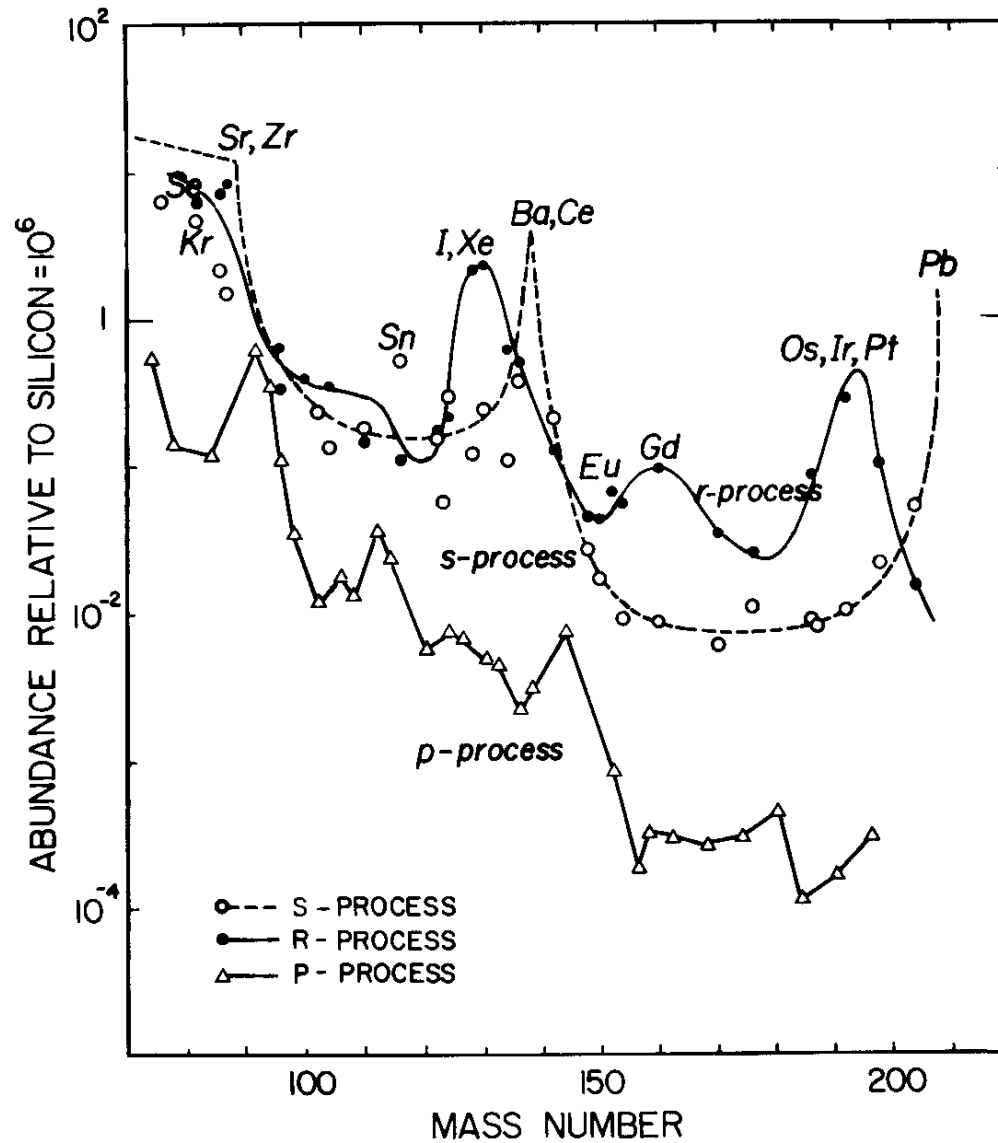
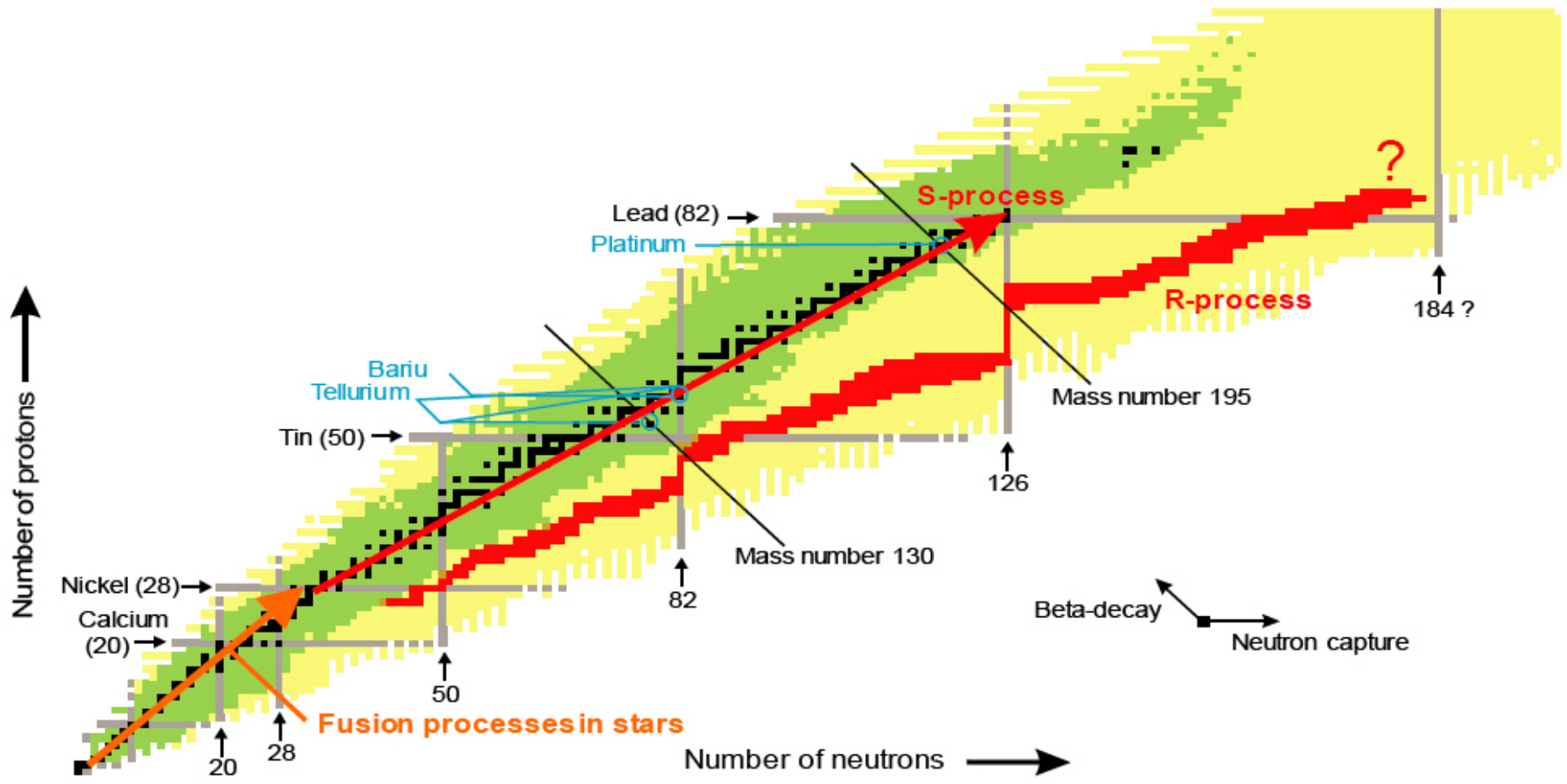


The origin of heavy elements in the solar system



(Pagel, Fig 6.8)

each process contribution is a mix of many events !



~35 p-nuclei cannot be made in s- or r-process: 74Se, 78Kr, 84Sr, 92Mo, 94Mo, 96Ru, 98Ru, 102Pd, 106Cd, 108Cd, 112Sn, 113In, 114Sn, 115Sn, 120Te, 124Xe, 126Xe, 130Ba, 132Ba, 136Ce, 138La, 138Ce, 144Sm, 152Gd, 156Dy, 158Dy, 162Er, 164Er, 168Yb, 174Hf, 180Ta, 180W, 184Os, 190Pt and 196Hn

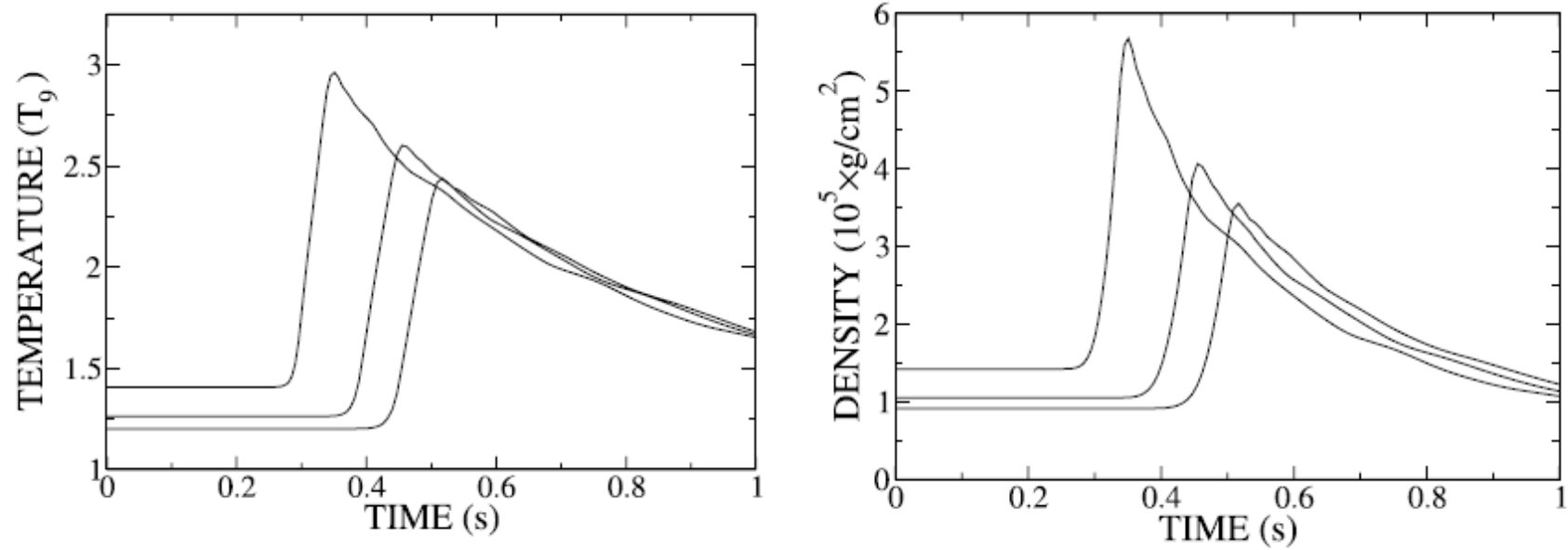
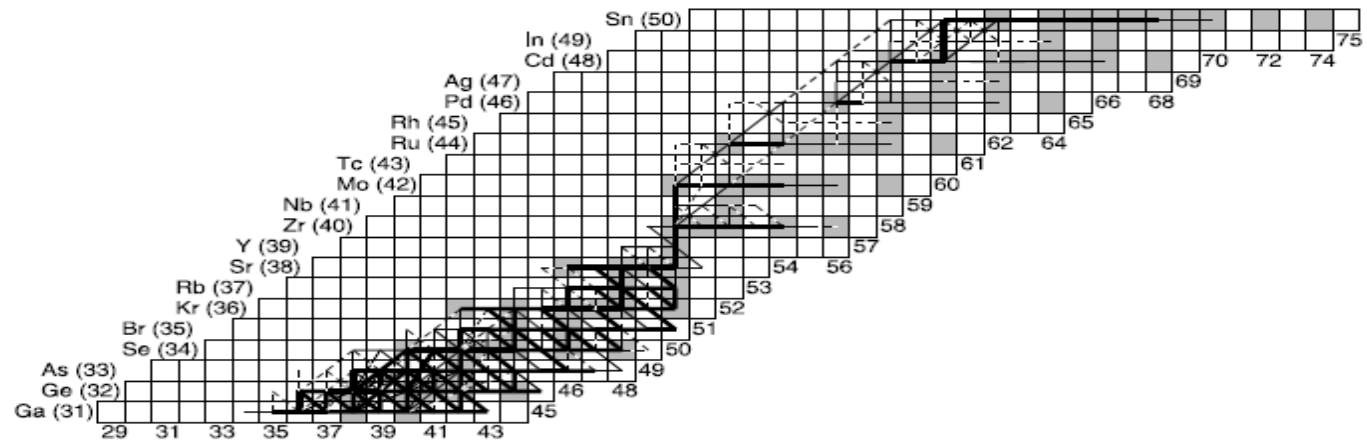
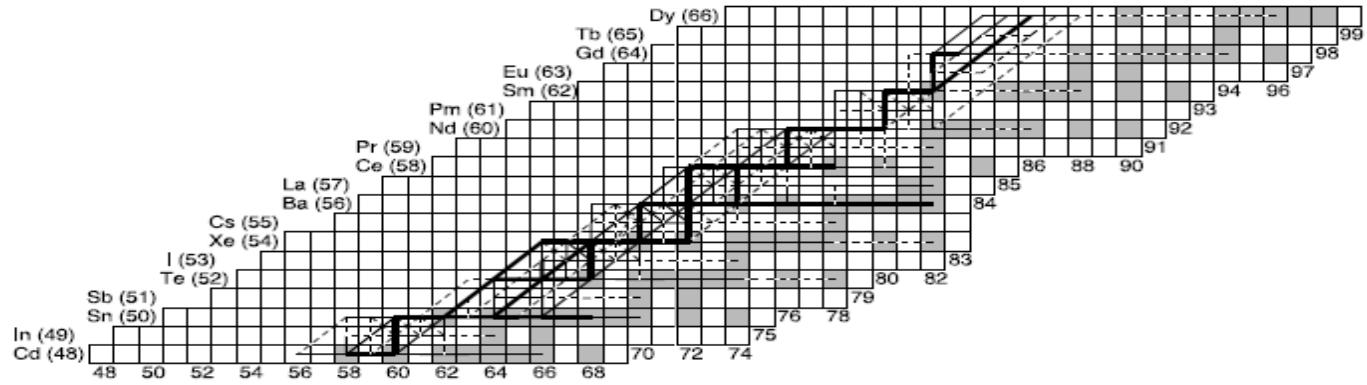
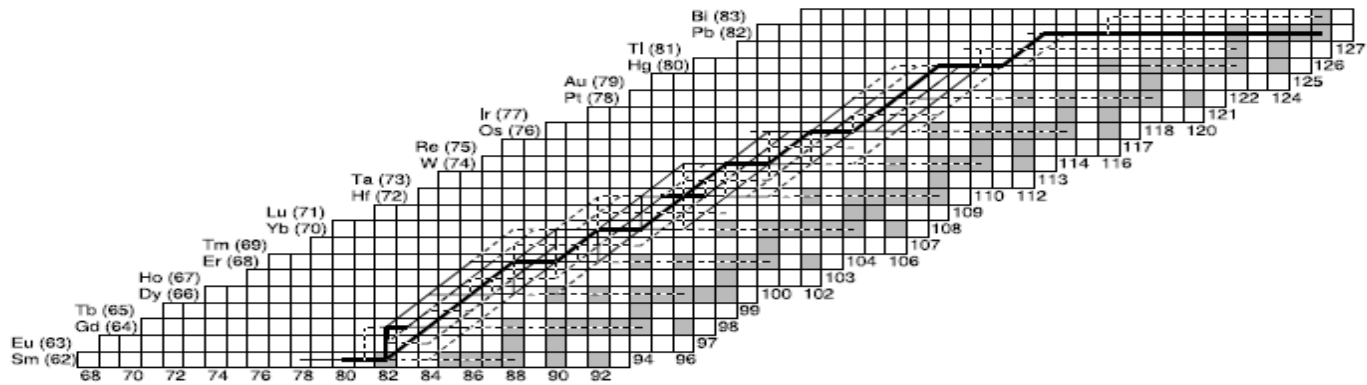


FIG. 2.—Temperature and density profiles of the SN shock front traversing the Ne/O layer of the pre-SN star.



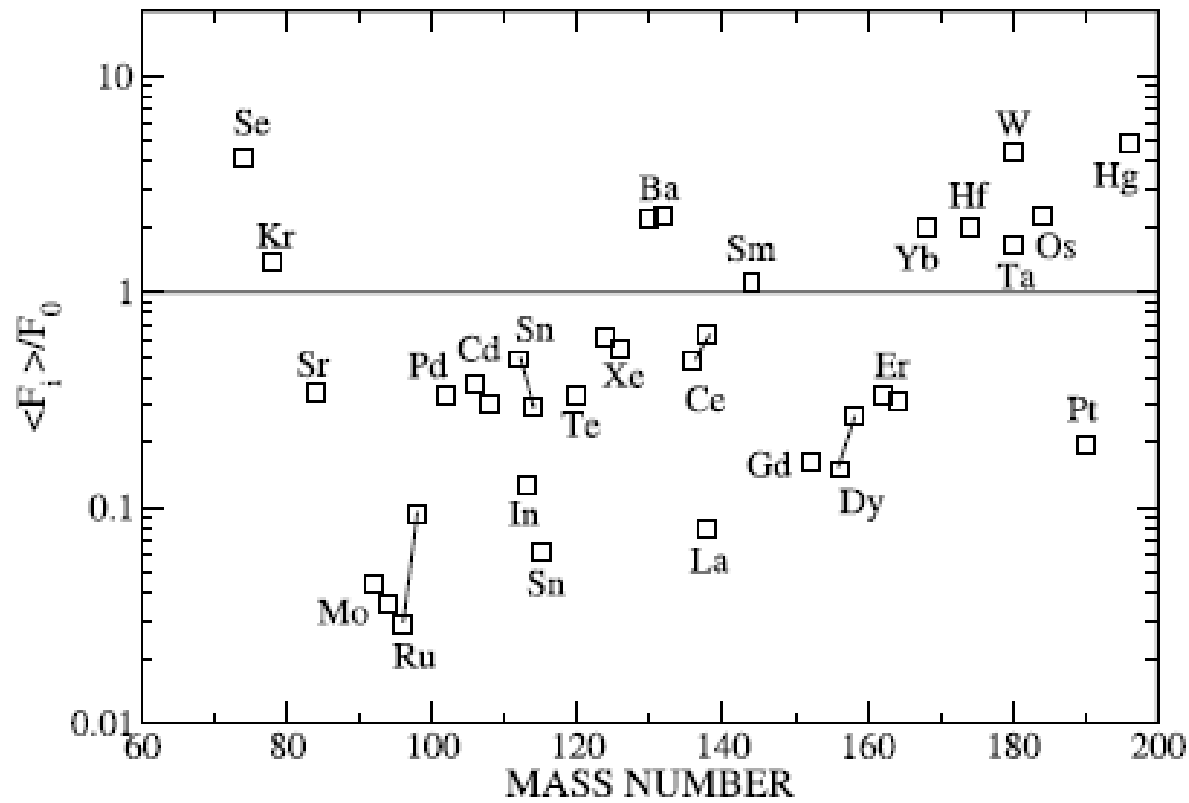
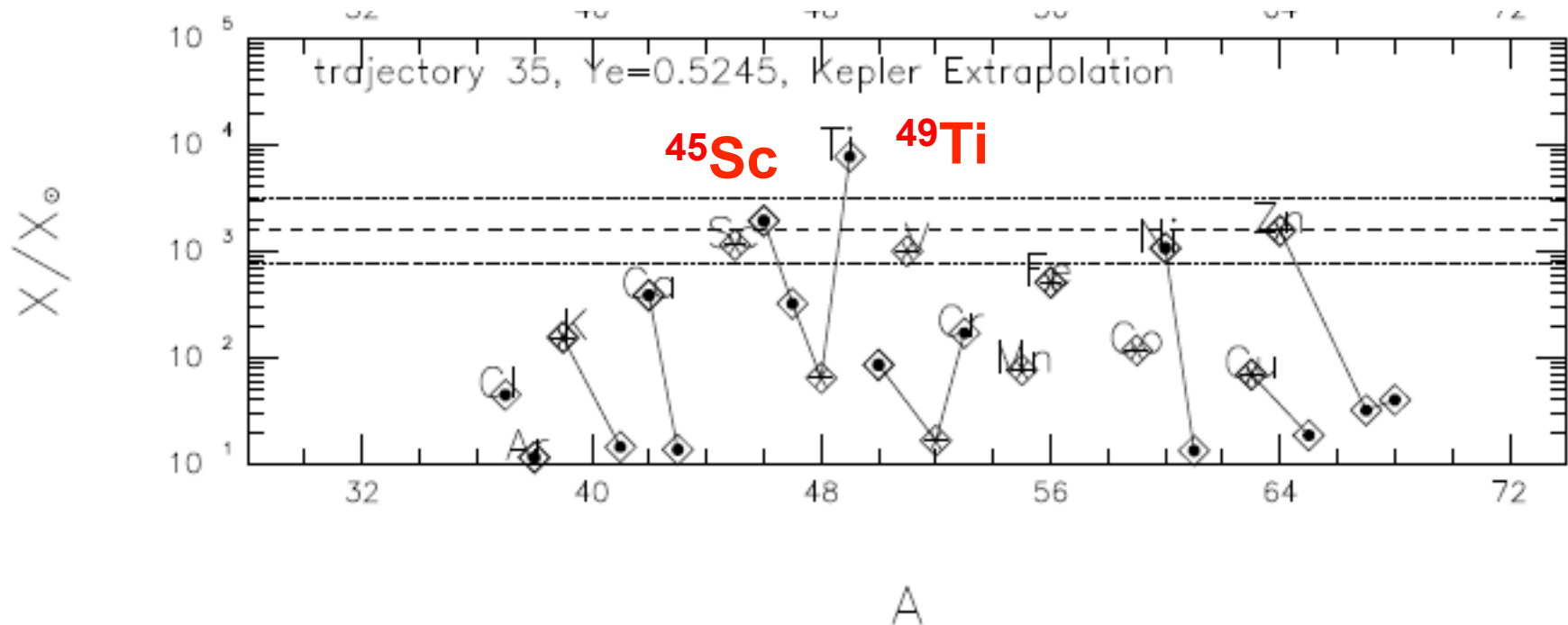


FIG. 4.—Averaged normalized overproduction factor for the proton-rich p -nuclei from network calculation with standard reaction rates (see text).

The νp process

J.Pruet et al. 2004: early neutrino driven winds in core collapse SNe are p-rich ($Y_e \sim 0.5$)

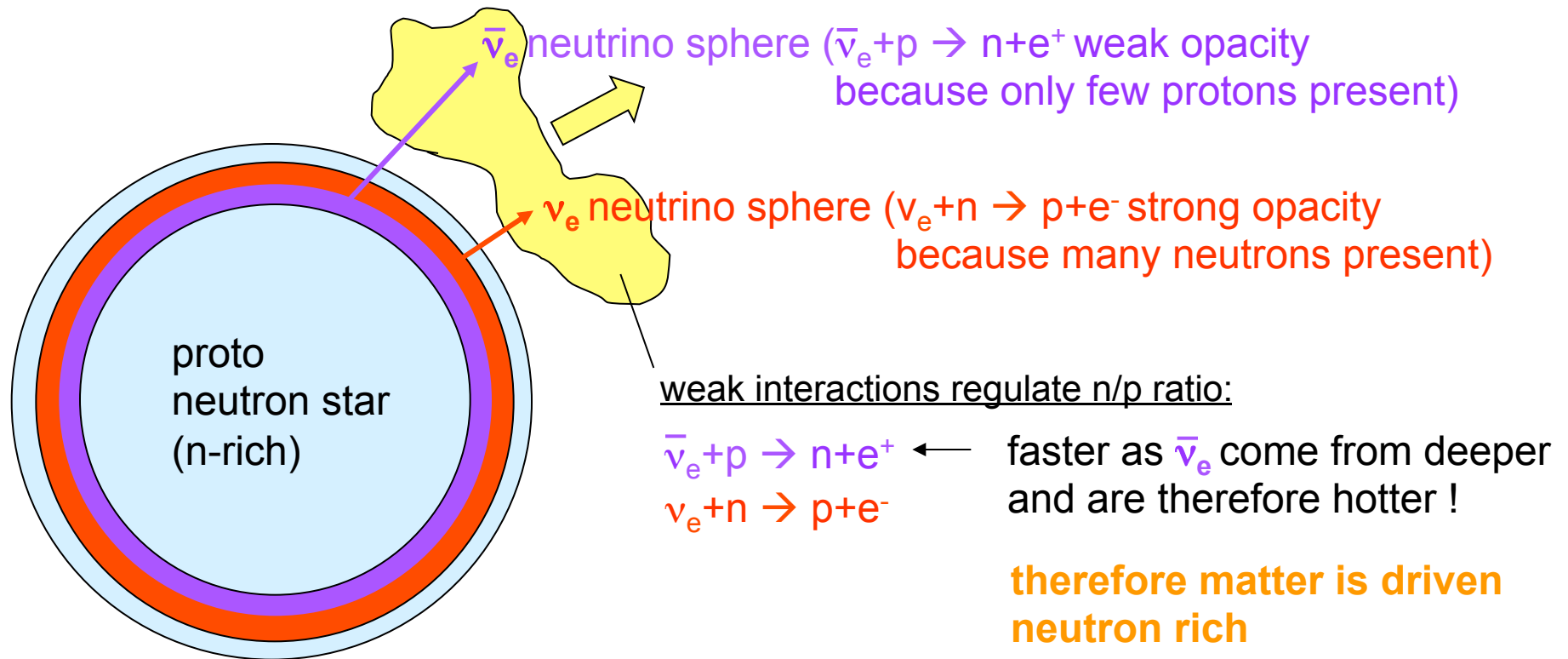


→ Origin of some isotopes not fully accounted for in SN?

Recall: r-process in Supernovae ?

Most favored scenario for high entropy:

Neutrino heated wind evaporating from proto neutron star in core collapse



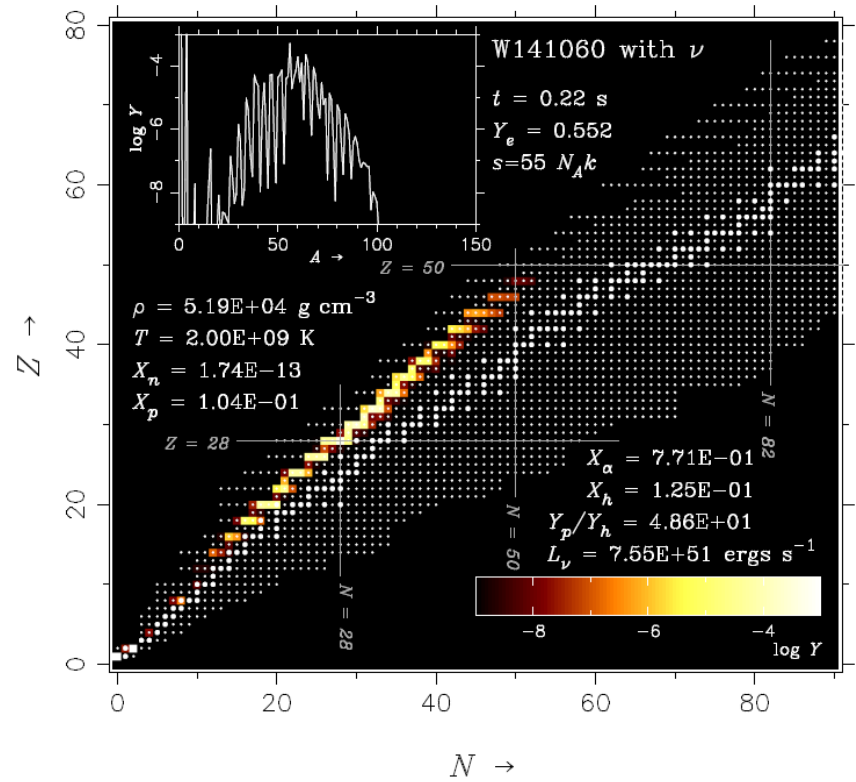
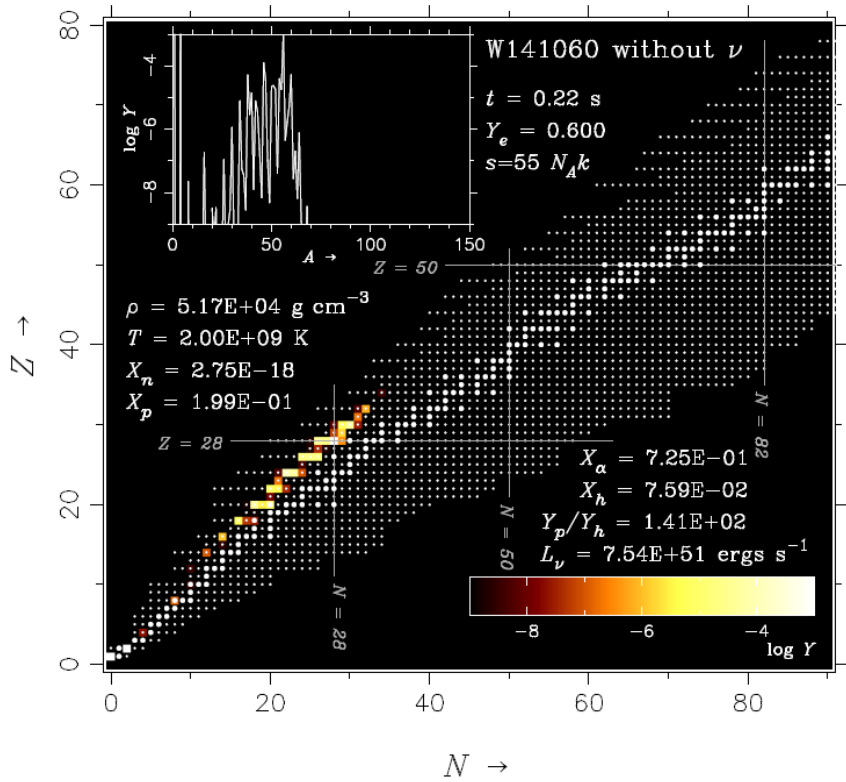
The νp process – the role of neutrinos?

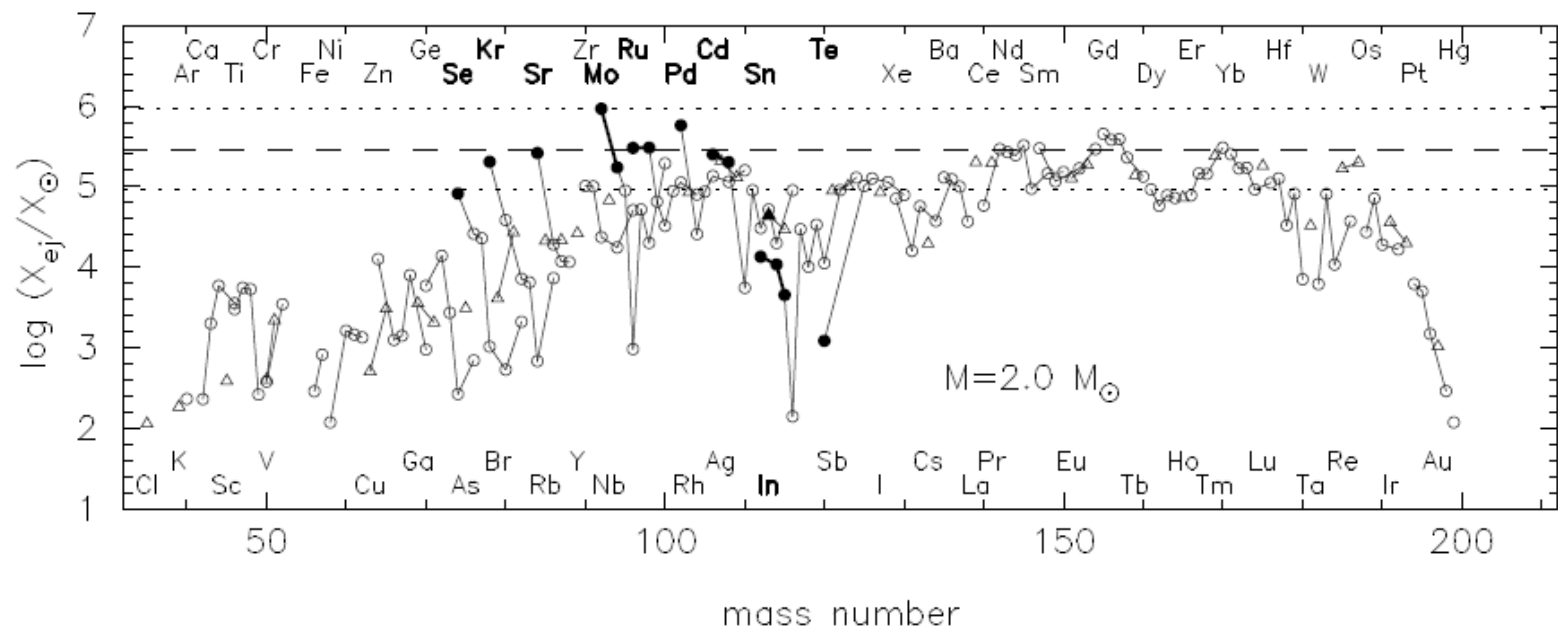
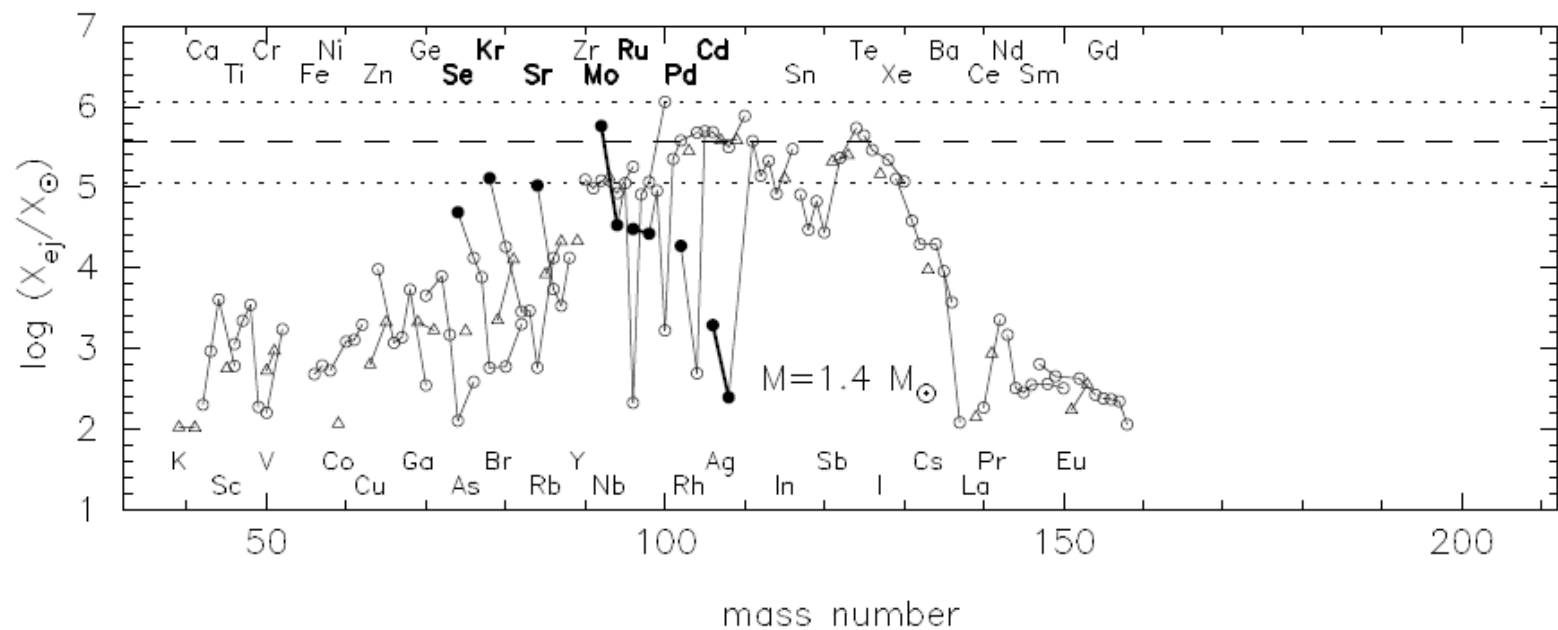
Froehlich et al. 2006

Pruet et al. 2006

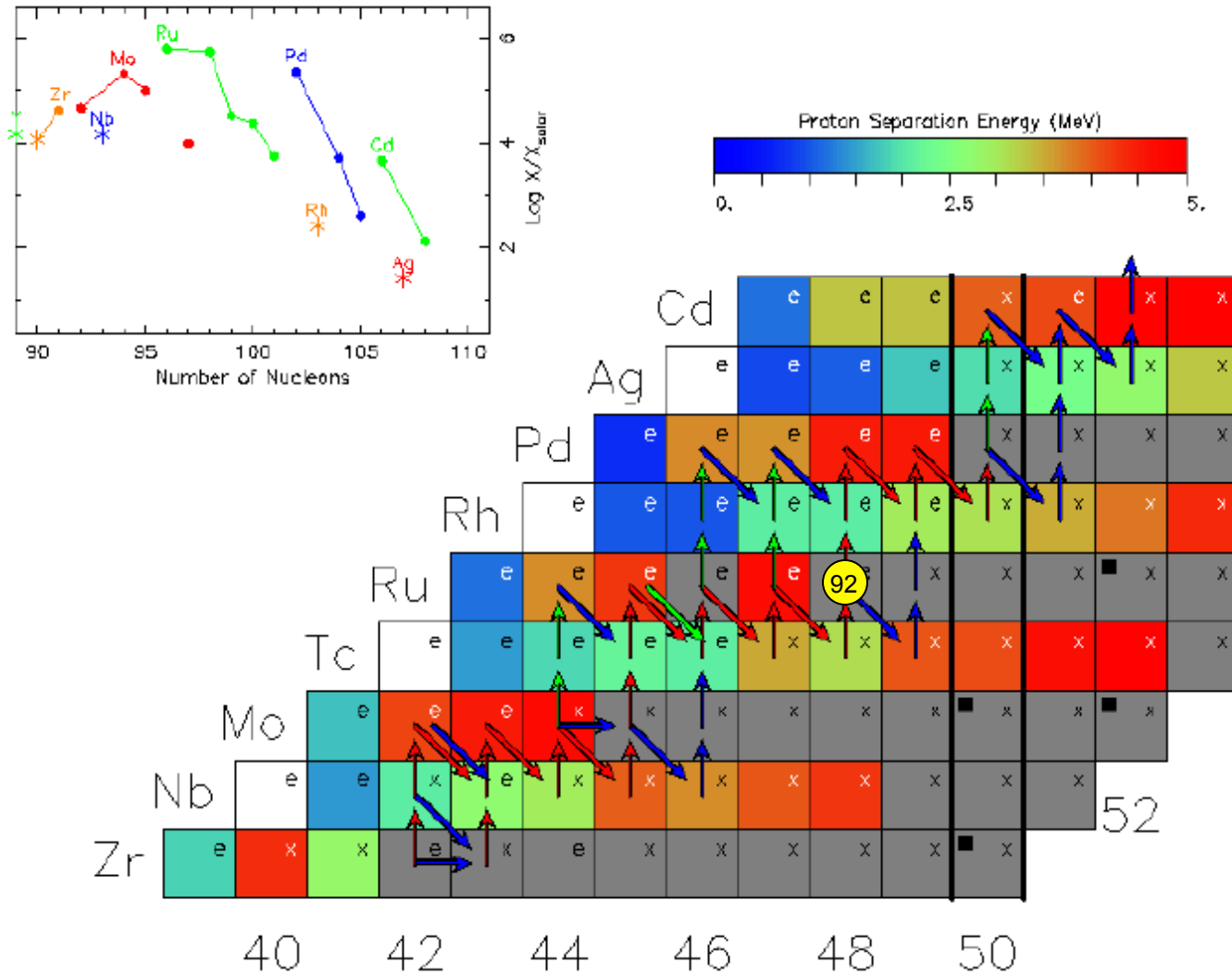
Wanajo et al. 2006

Recall α -effect in r-process ...

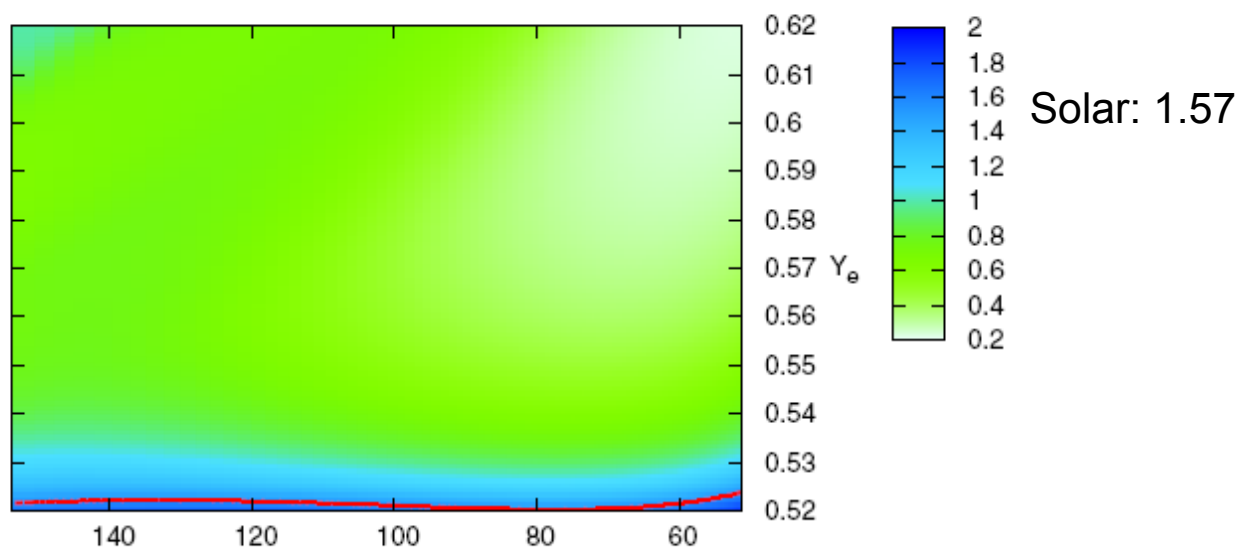




Fisker et al. 2009 – can one make $^{92}\text{Mo}/^{94}\text{Mo}$ in solar proportions?



92Mo/94Mo ratio



92Mo overproduction

Entropy/baryon

