Neutrino Effects on the r-Process in Black-Hole Forming Supernovae (Work in Progress)

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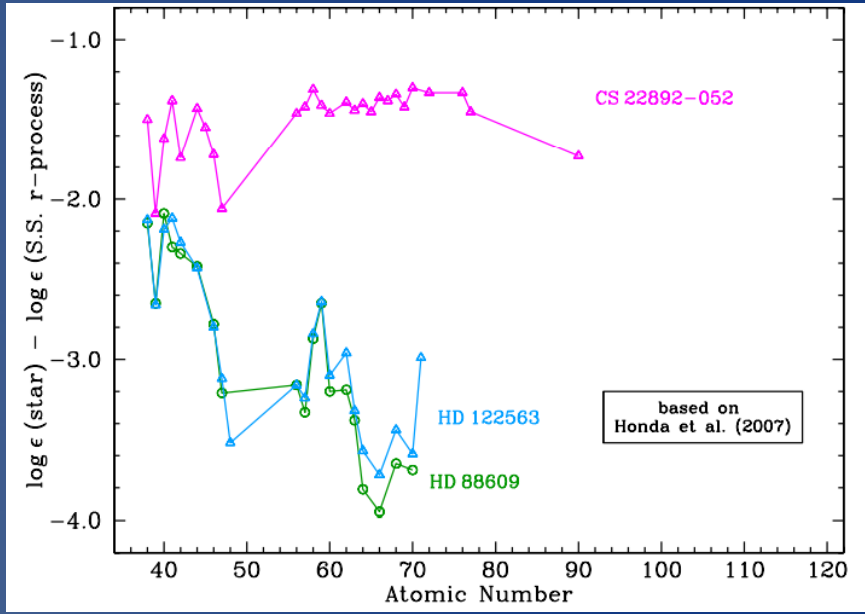
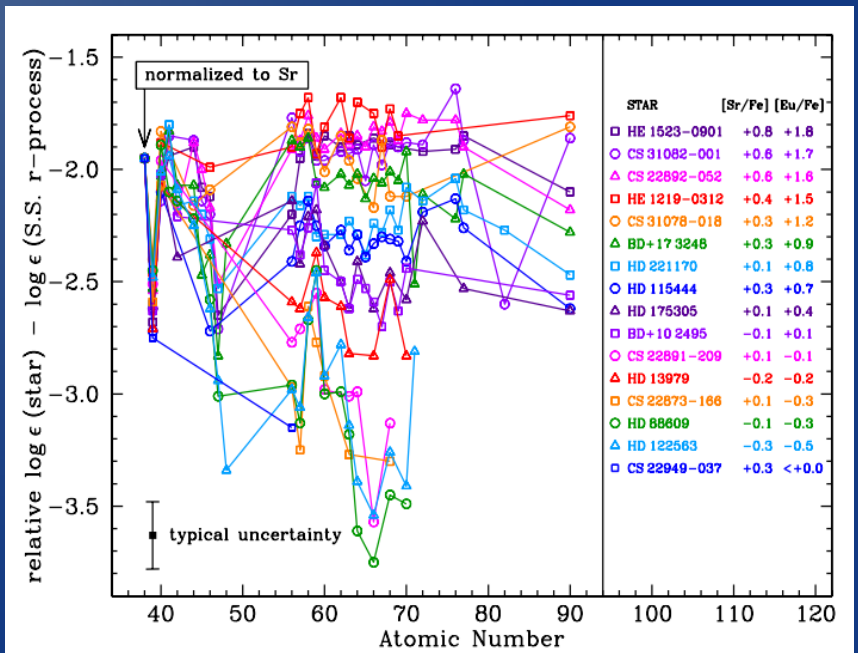
Outline

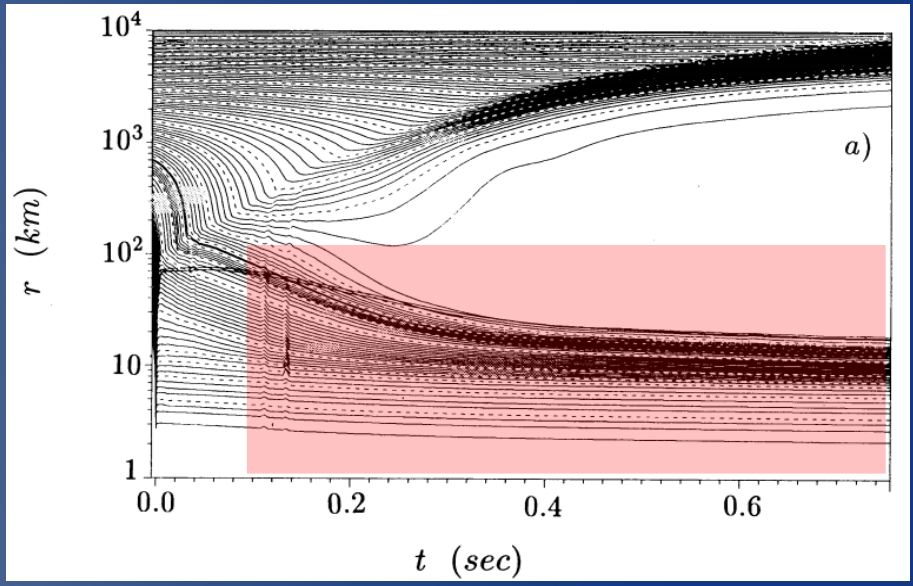
- Metal Poor Stars
  - Light-element enrichment
- Fallback in Type II SN
  - Physical truncation of hydrodynamics
  - Neutrino luminosity changes
- First Simple Calculation
  - Fallback trajectories
- Current Status
  - Consistent model from collapse to nucleosynthesis

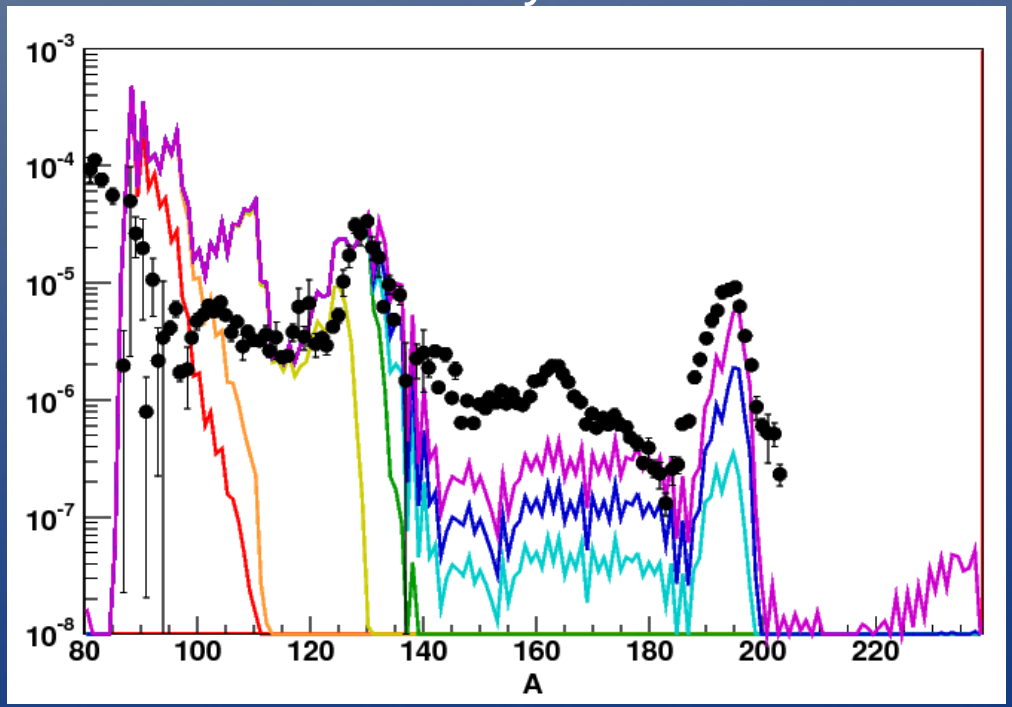


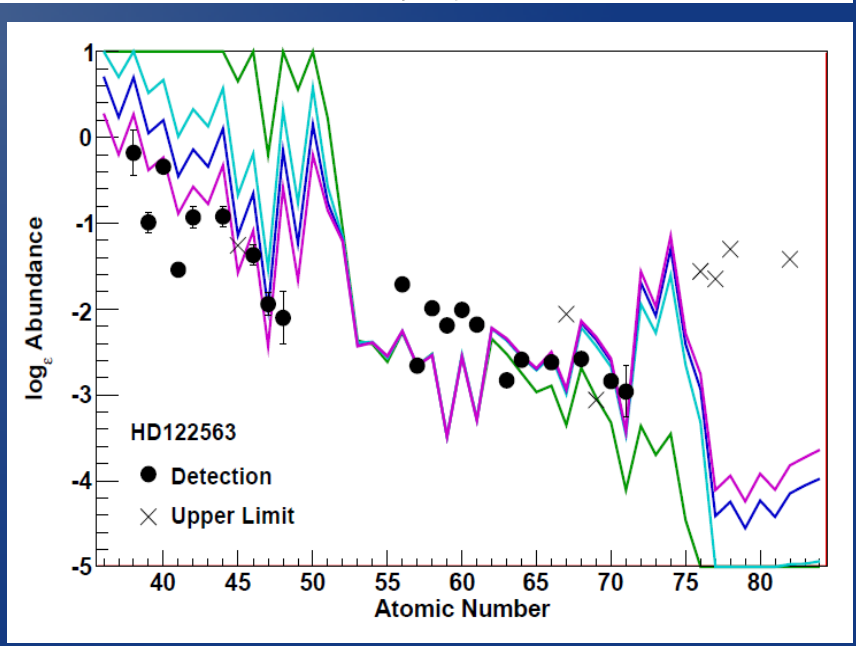


First Preliminary Calculation

- Consider hydrodynamics in e.g. Woosley 1994 model.
  - Mass cut based on previous results of Nakazato et al. (2007)
- Not quite so simple
  - Trajectories modified by neutrino luminosity cut

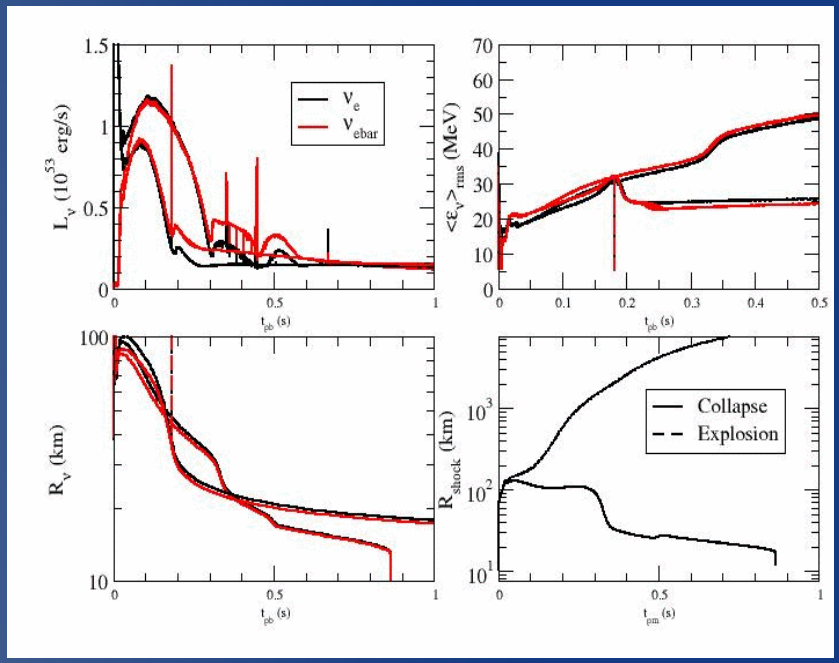


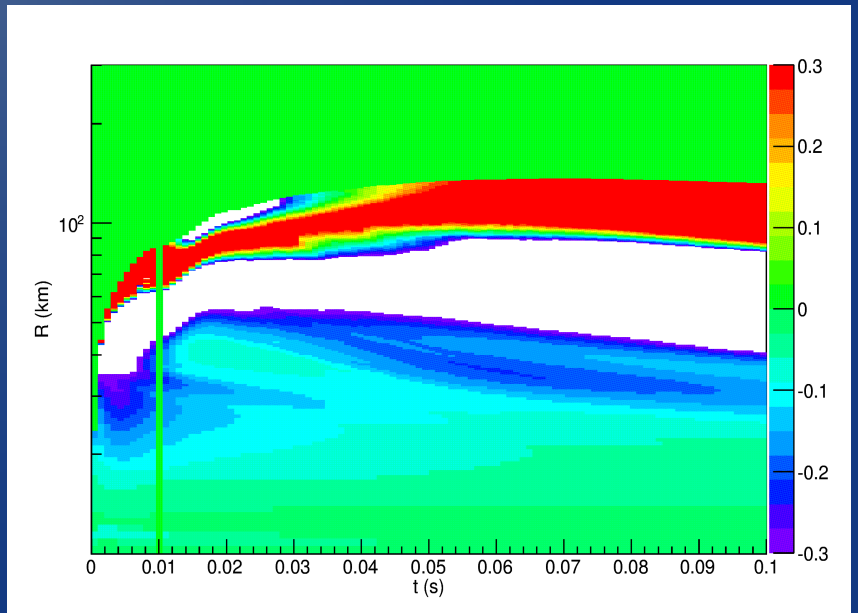




Current Status and Problems

- Spherical BH model
- Qualitative neutrino treatment: grey spectrum
- Comparison to 3D models for veracity
- Coupling to nucleosynthesis afterburner
- Neutrino spectra cutoff for collapse





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