Primordial SNe Working Group

Progenitors and Explosive Engines
• Uncertainties in the rates and types of Pop III Explosions
  More work needs to be done. Unclear whether a PS-based approach is sufficient as one needs local feedback.
• Uncertainties in the progenitors: spins, mixing
  More work needs to be done. Unclear whether the binaries affect the stellar evolution. Separation of ~100 AU places this in the grey area.
• Uncertainties in Nucleosynthesis
  Constrain by looking at absorption systems but we need bright QSOs at z>7. Nuclear reaction rates can be measured but the hydrodynamical uncertainties remain serious.
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Progenitors and Explosive Engines
• Environment
Probable the pre-existing environment is simple (at least for high-z explosions). Mass ejection by the star itself (LBV) might be a more serious issue.
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Observations
• Understanding UV emission from supernovae
• Identifying Pop III supernovae

Very difficult problem. Best approach may be to go after core-collapse GRBs. How do we know it’s a Pop III? spectroscopic confirmation.
• Lensing
• GW/neutrino observations
• SN 2006gy

Most likely not a PISN
Initial Rotation of Massive Stars

Pop I/II

Pop III