Angular momentum in supernova progenitor stars

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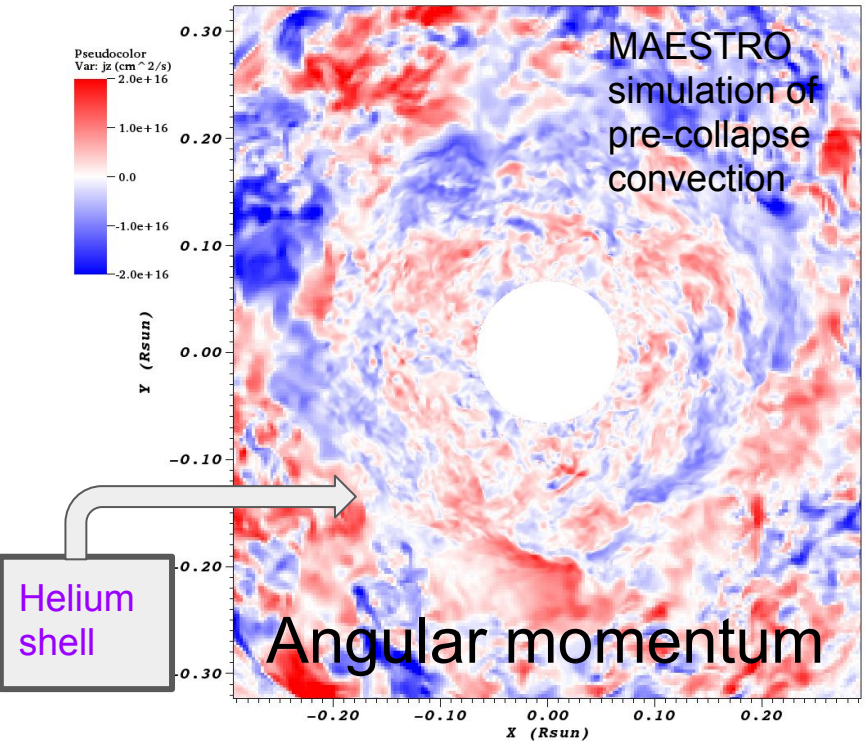
Slow rotator - pre-collapse convection significant

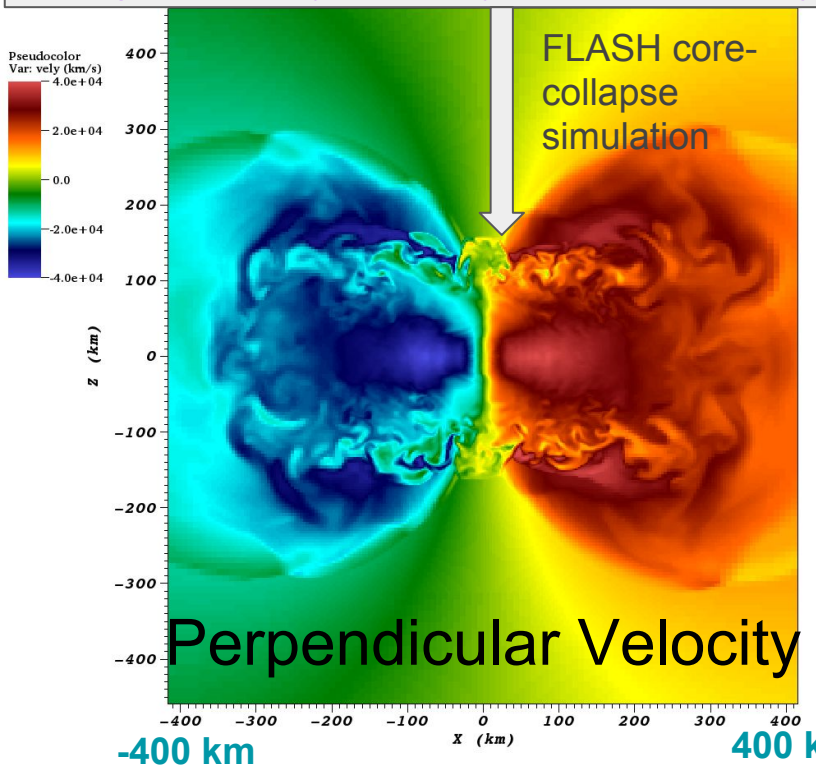
Red and blue - opposite rotation



Gilkis & Soker 2016, accepted to ApJ, arXiv:1505.05756

Fast rotator - collapse is rotationally regulated

Strong shear likely to amplify B-fields and form jets



Gilkis & Soker 2016, in preparation

Implications of angular momentum for CCSNe

- Rate of rotation can distinguish between:
  - Slow rotation: Regular energy SNe driven by multiple jets in various directions
  - Rapid rotation: Super-energetic SNe with long-lasting accretion disk and jets (Gilkis, Soker & Papish 2016, accepted to ApJ, arXiv:1511.01471)

- Jets launched from n-rich disks are likely sites of strong r-process (rare explosions).