

Common-envelope evolution of an AGB star

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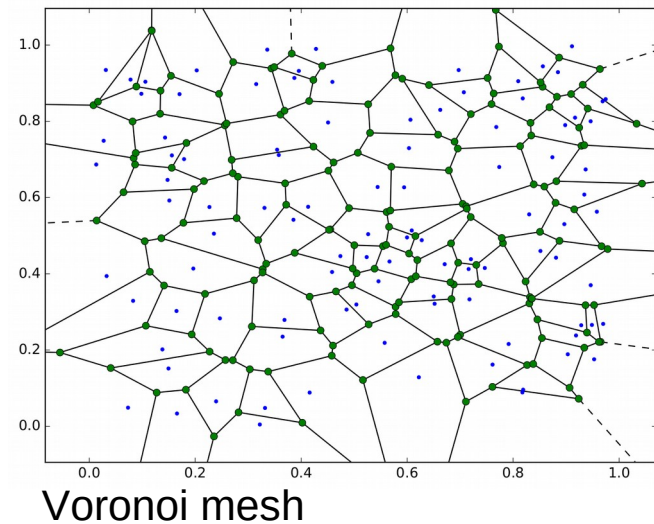
Heidelberg Institute for Theoretical Studies

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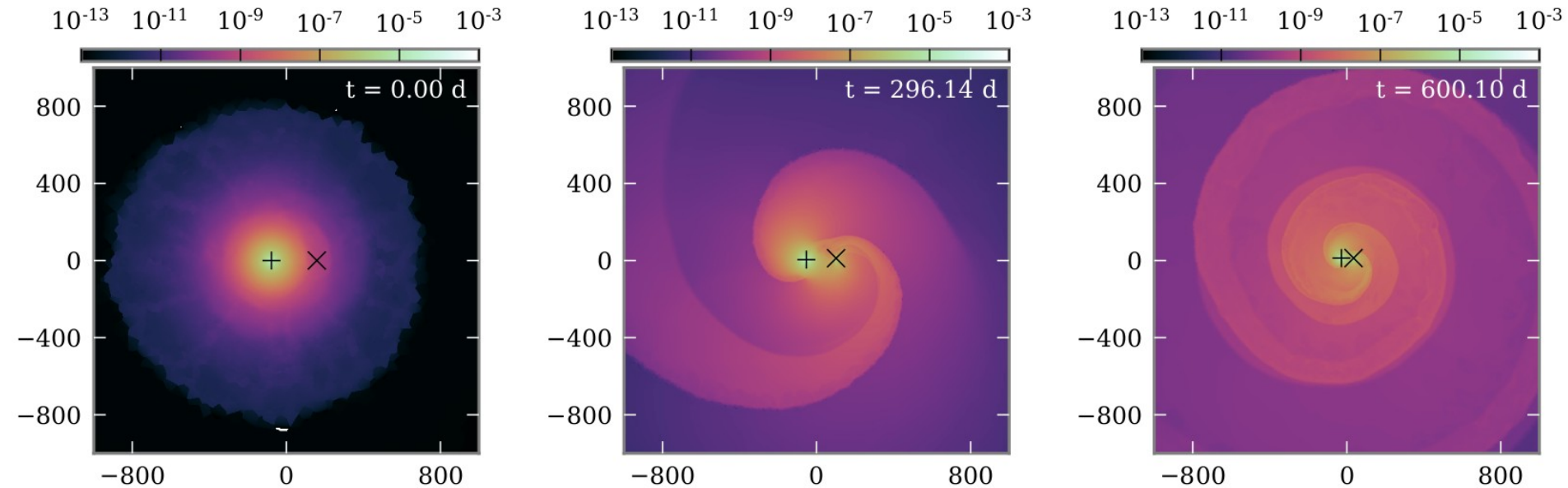


Introduction

- CE: AGB & WD
- wide range in spatial scales (HE & timescales)
 - mapping 1D stellar profile from MESA → grid
 - relaxing giant's atmosphere → stable model
 - binary simulation
- Moving unstructured mesh code
- Explicit refinement and derefinement
- 3D

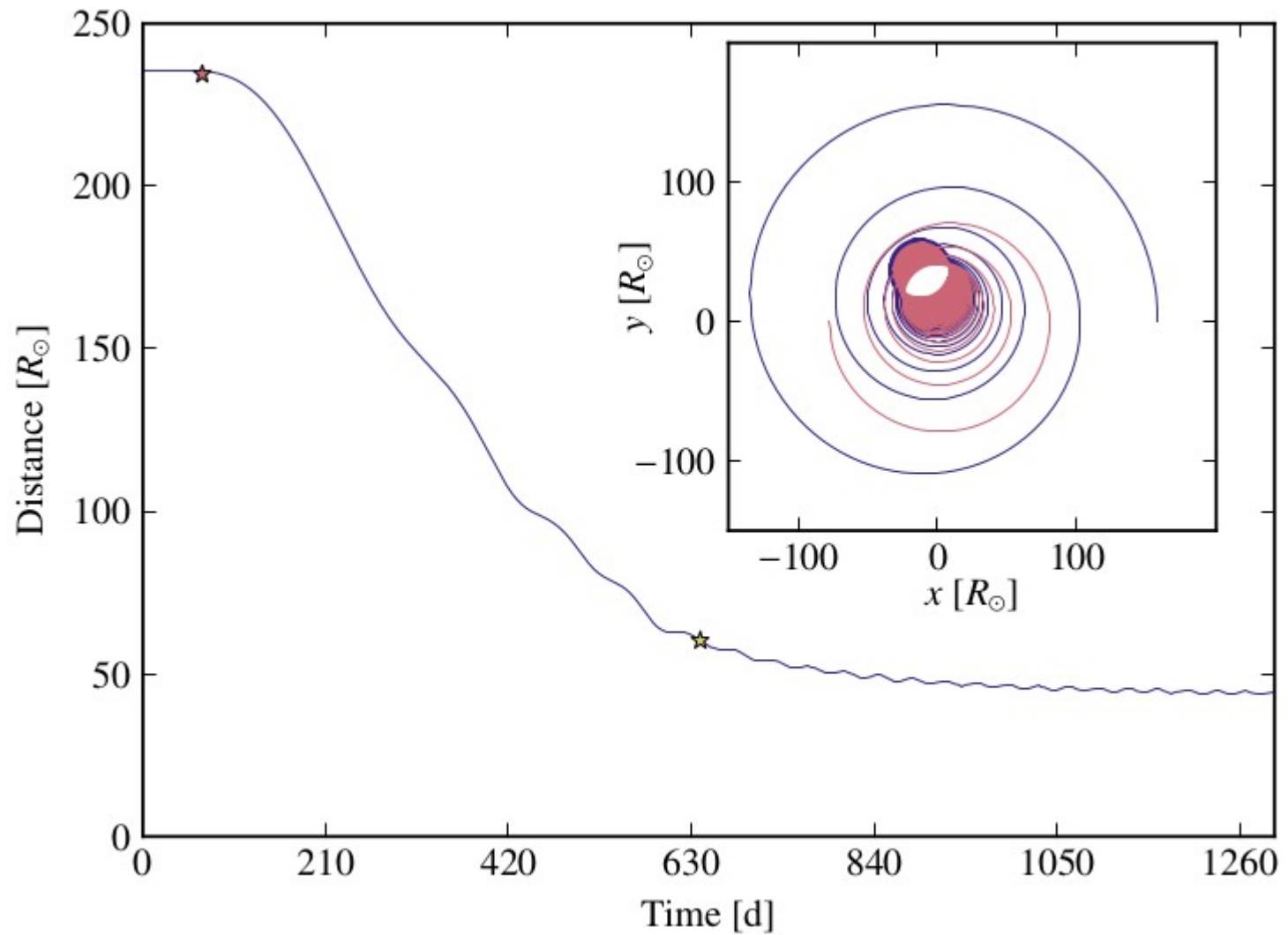


Common-envelope simulation



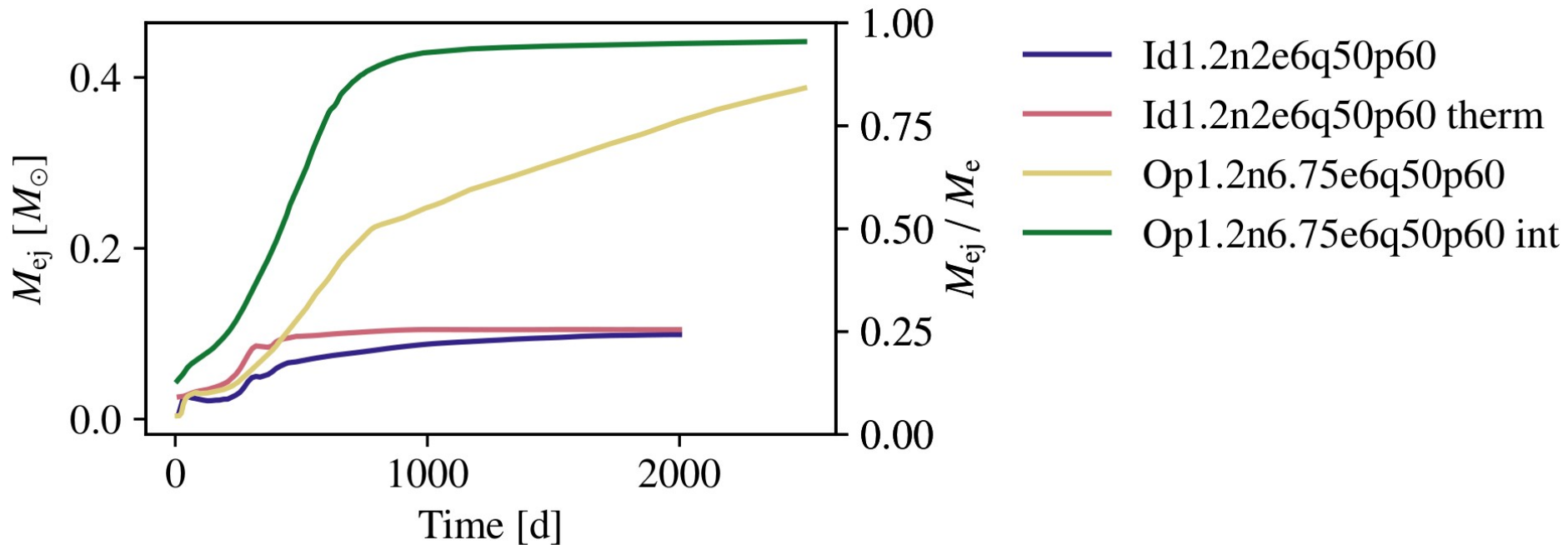
- density plots of Op1.2n6.75e6q50p60
- @ beginning, after one resp. four orbits.
- slice of x-y-plane (orbit), units of R_{sol} from CM

Orbit



stars mark plunge-in phase, primary in red & secondary in blue

Unbound mass



- kinetic energy (blue resp. yellow line)
- thermal resp. internal energy (red resp. green line)