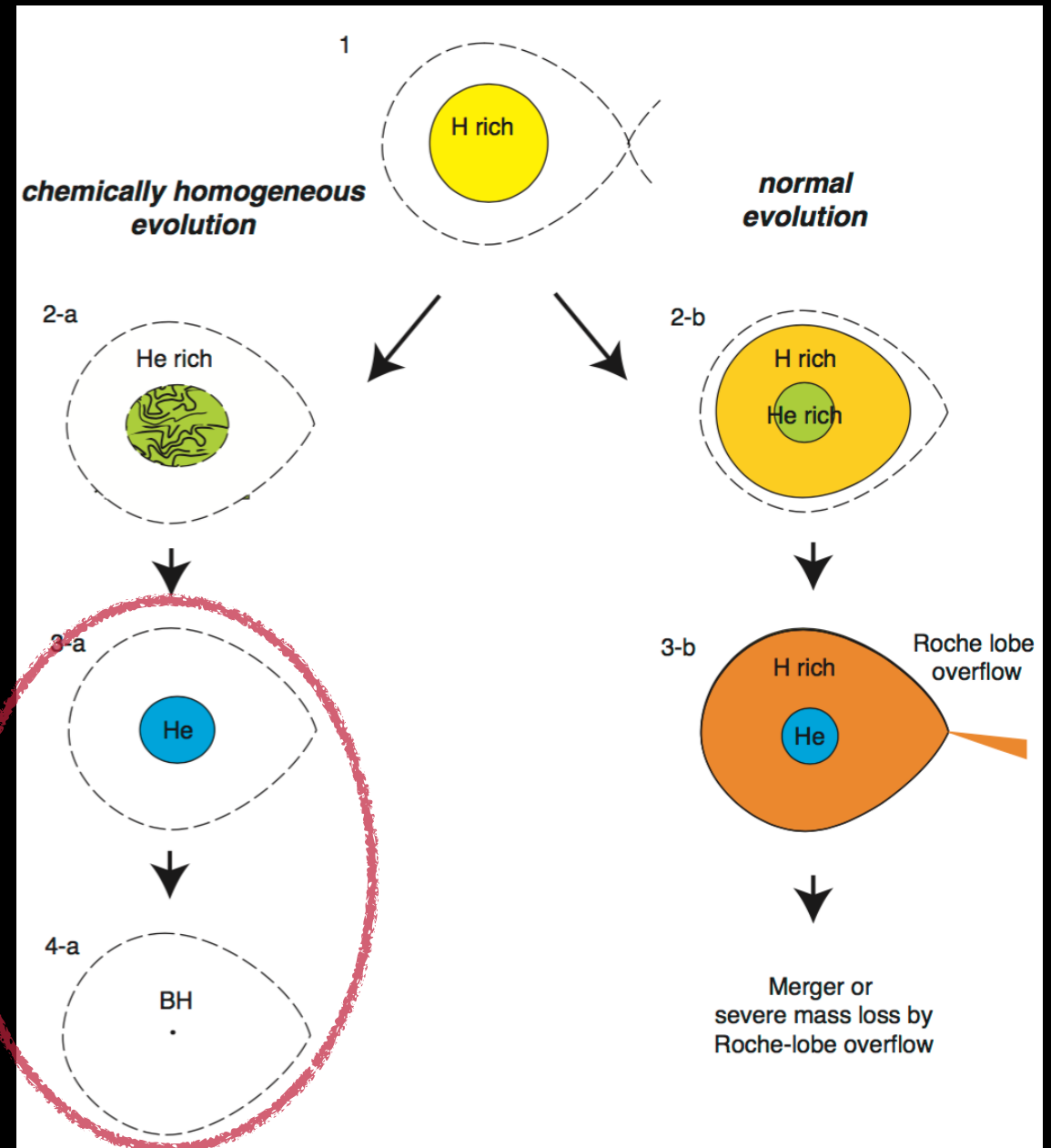
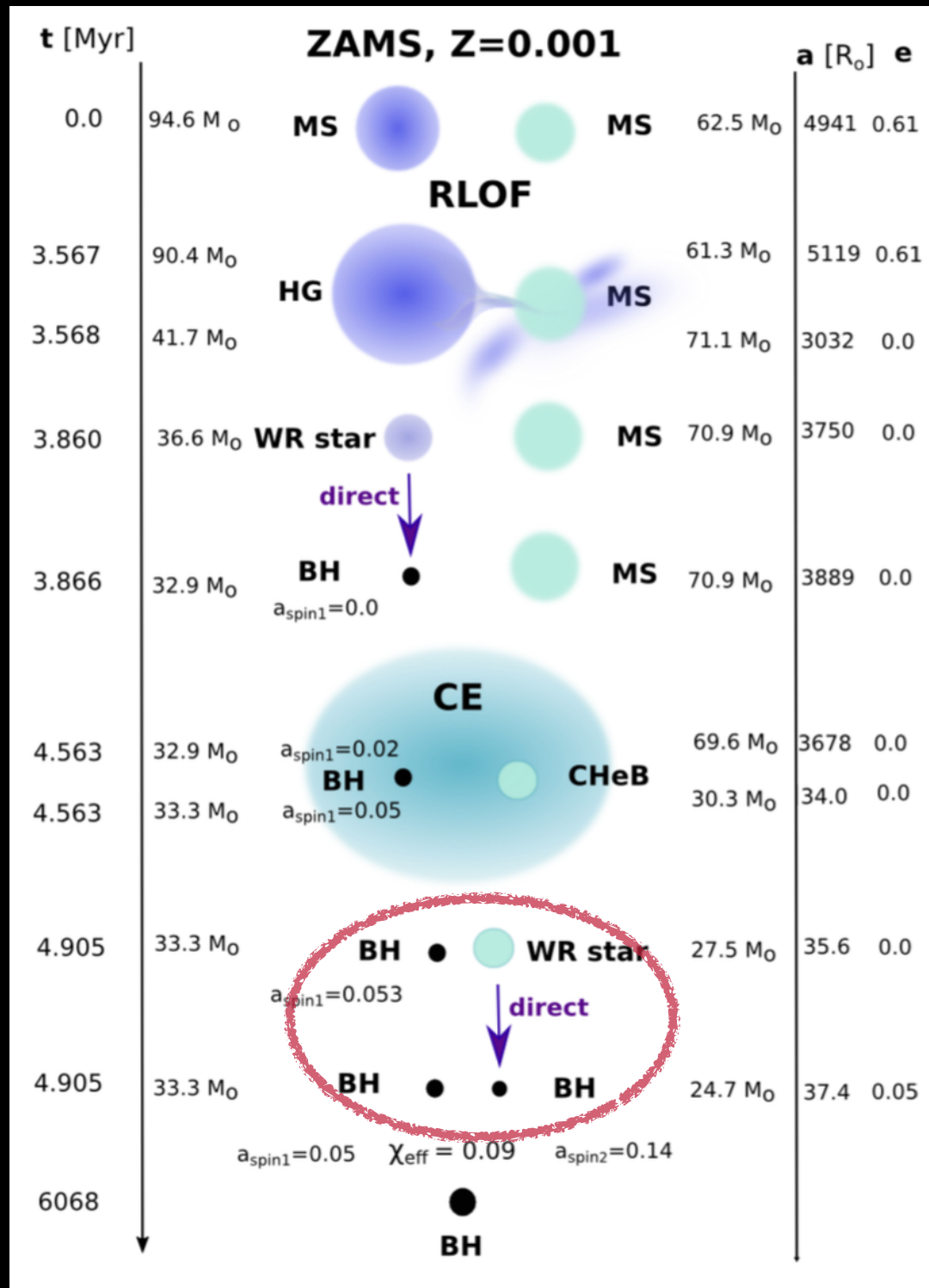


Black Hole Formation in Fallback Supernova Explosions and the Spins of LIGO Sources

Sophie L. Schröder, Aldo Batta, Enrico Ramirez-Ruiz

Isolated formation

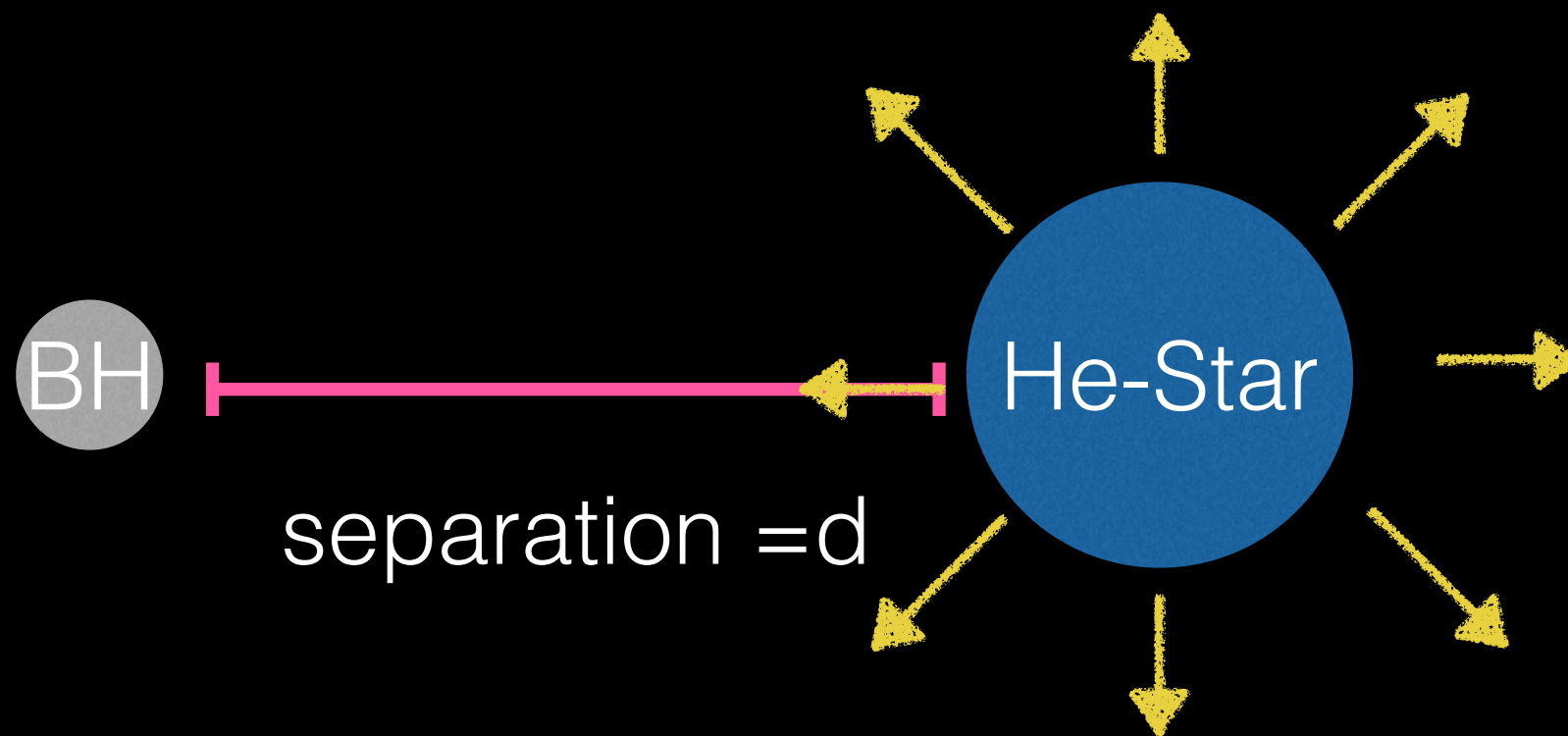


Mandel & de Mink 2016

Outline

- Supernovae in binaries
- Our supernovae in Gadget2
- What affects the final spin values?
- How do our simulations compare with GW events so far?

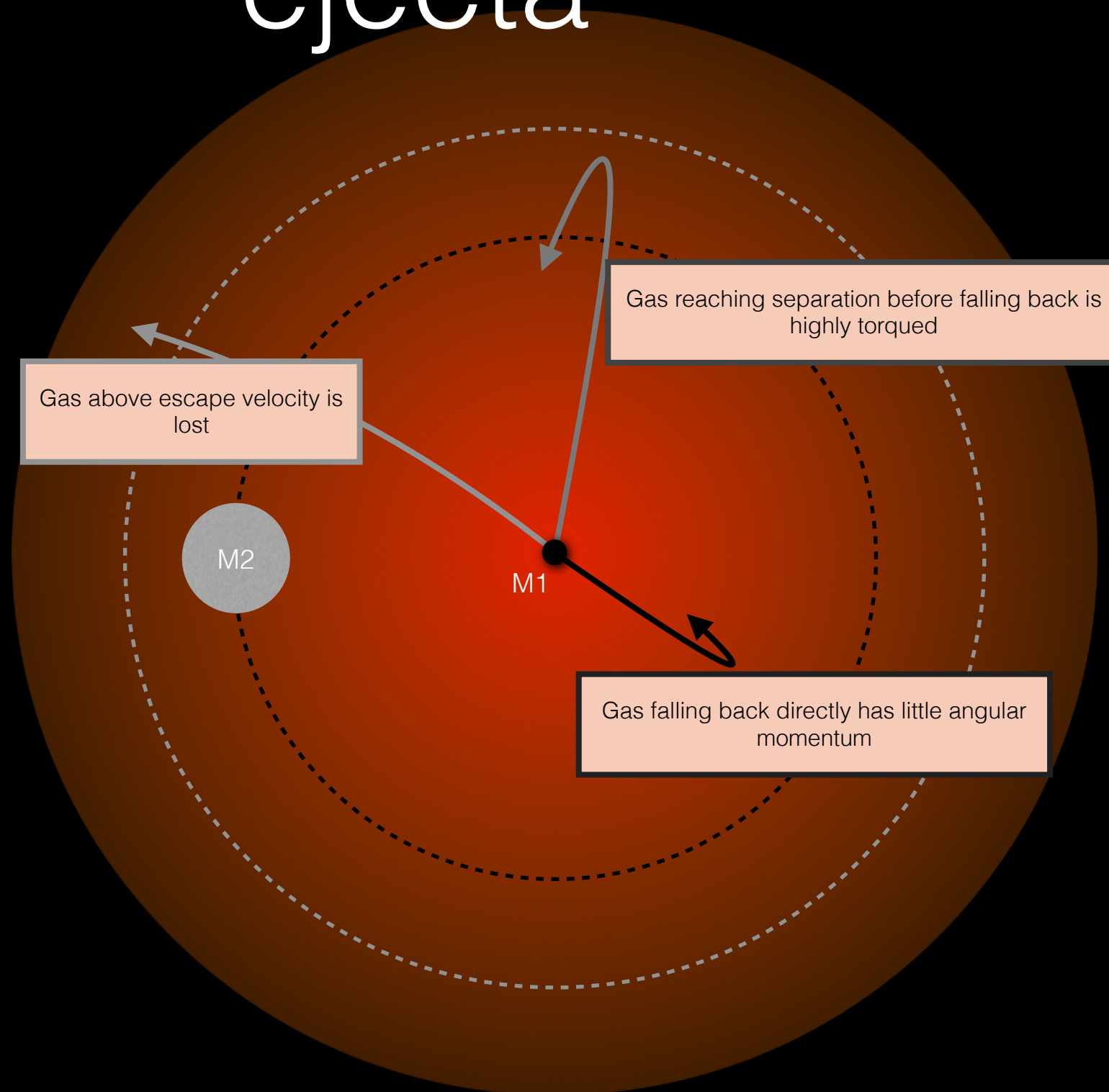
Simulations of Supernovae



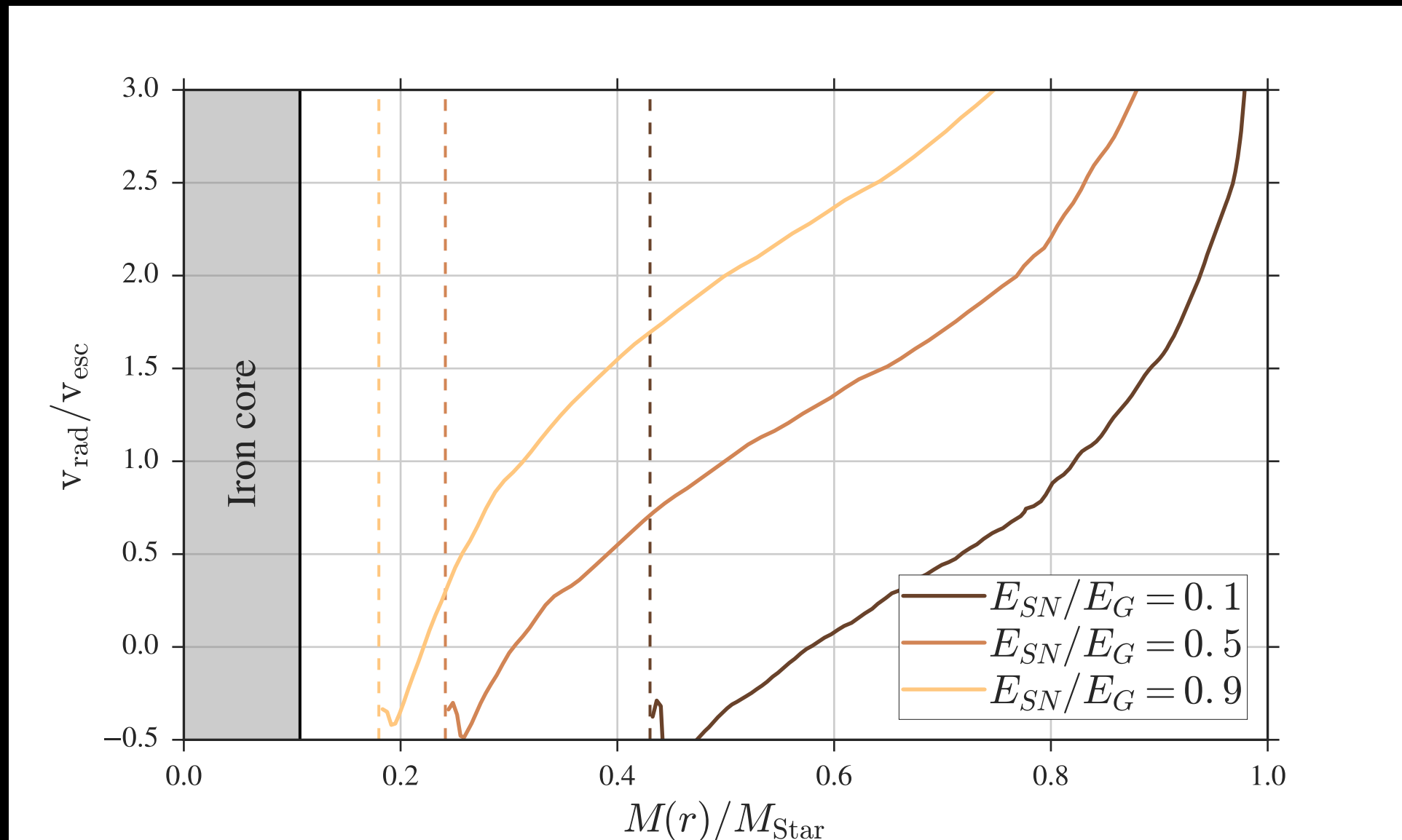
M2: 15 M companion BH

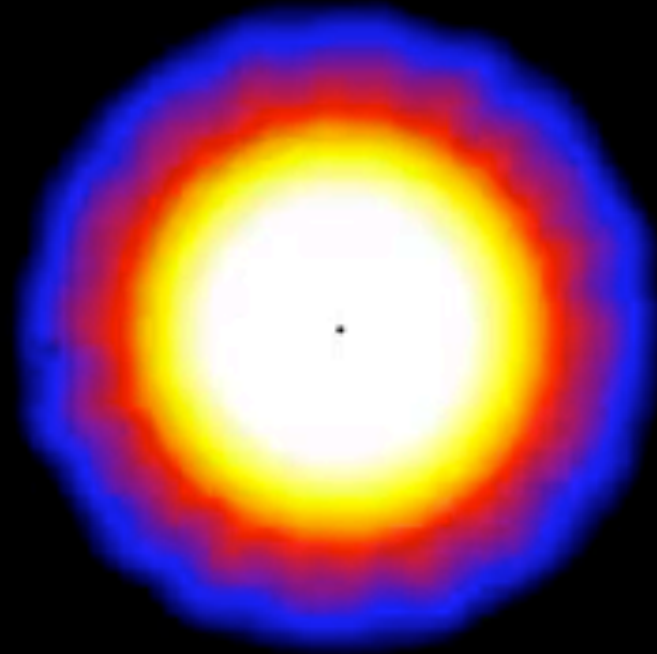
M1: 28 M He-Star about to explode

Binary interaction with SN ejecta

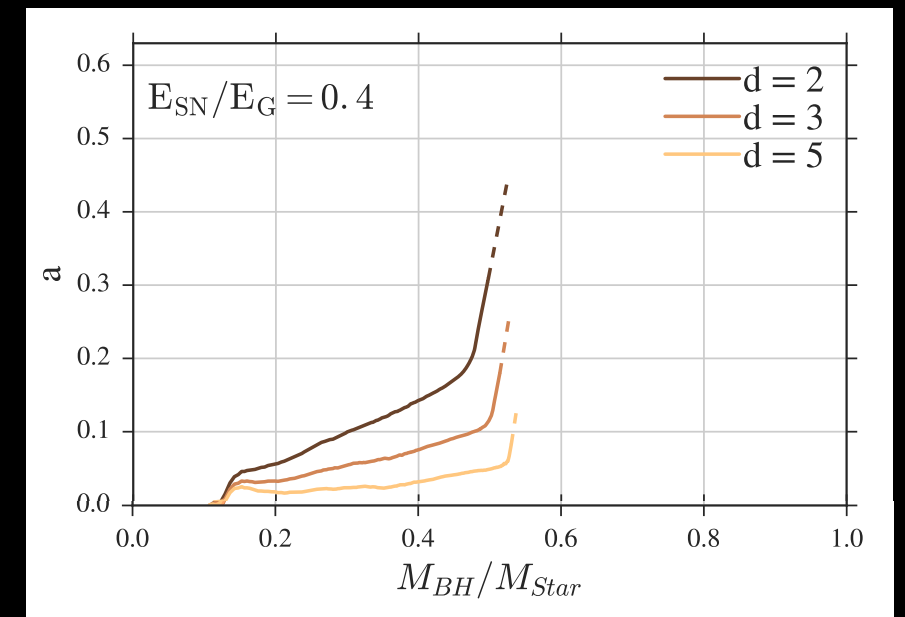
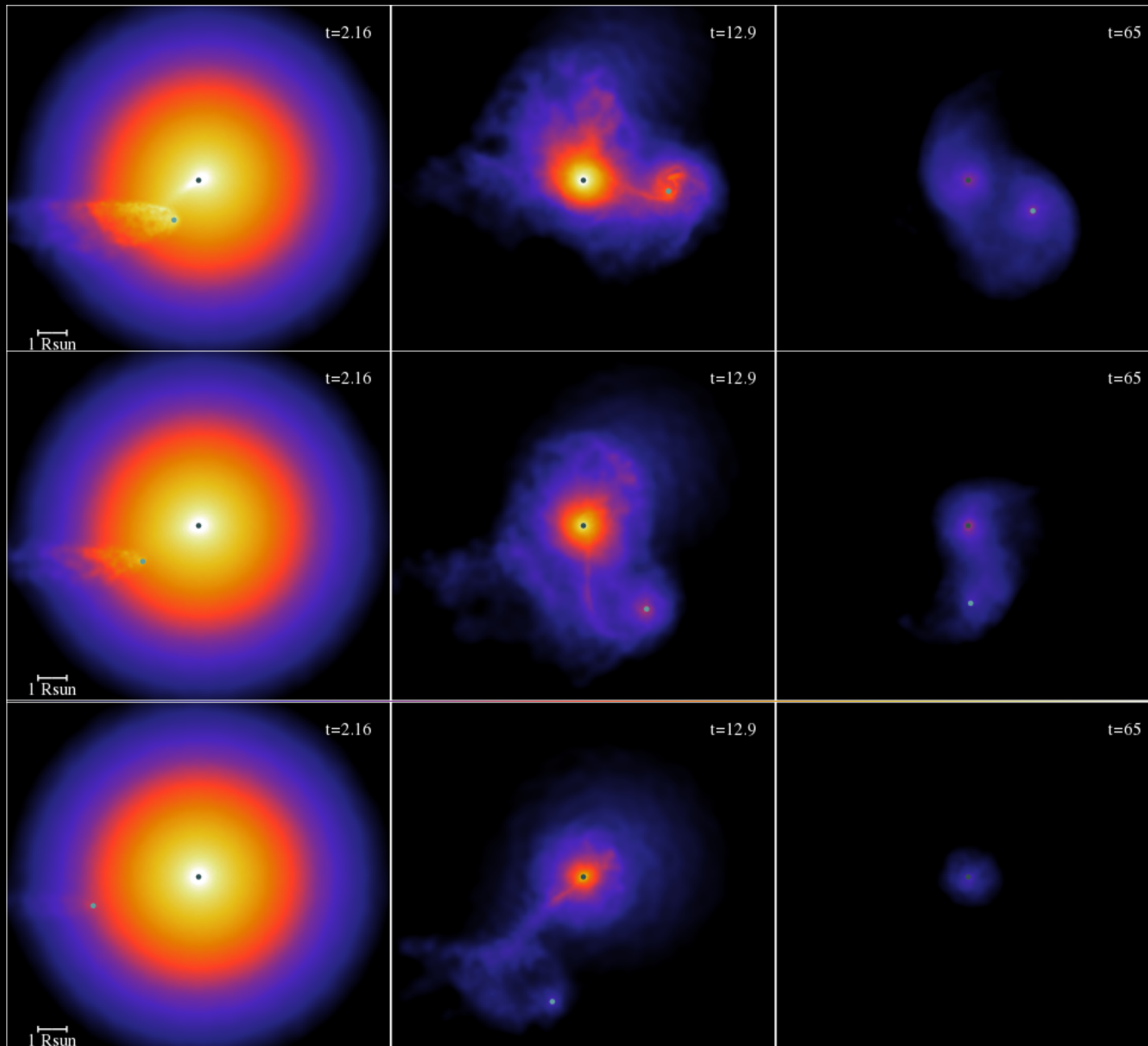


Different energies give different velocity profiles

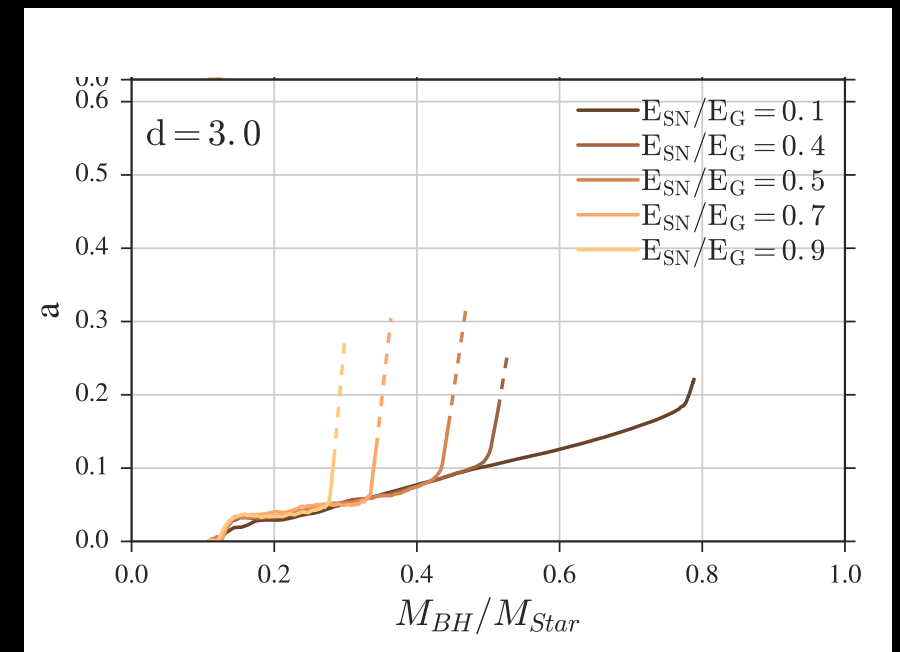
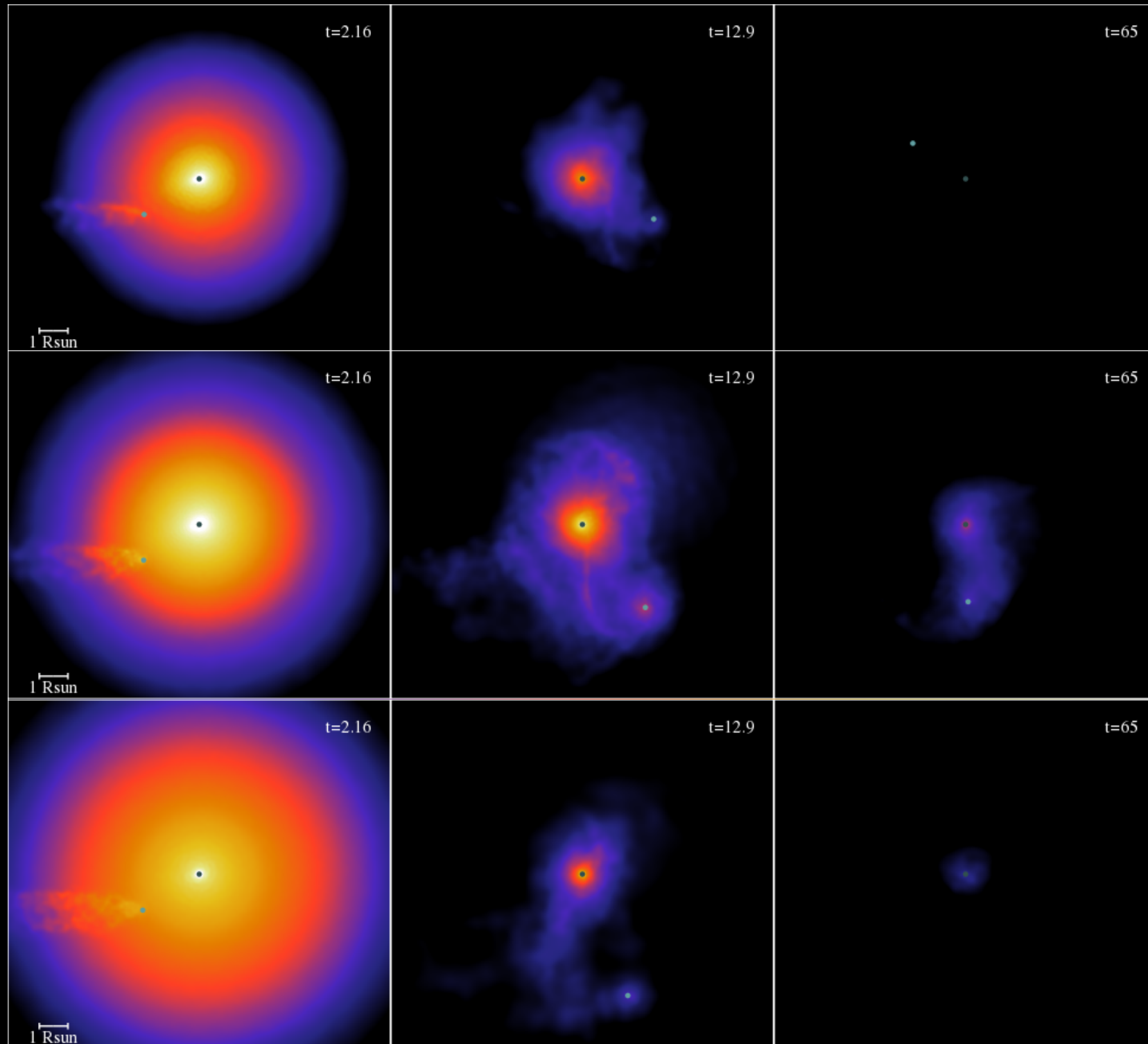




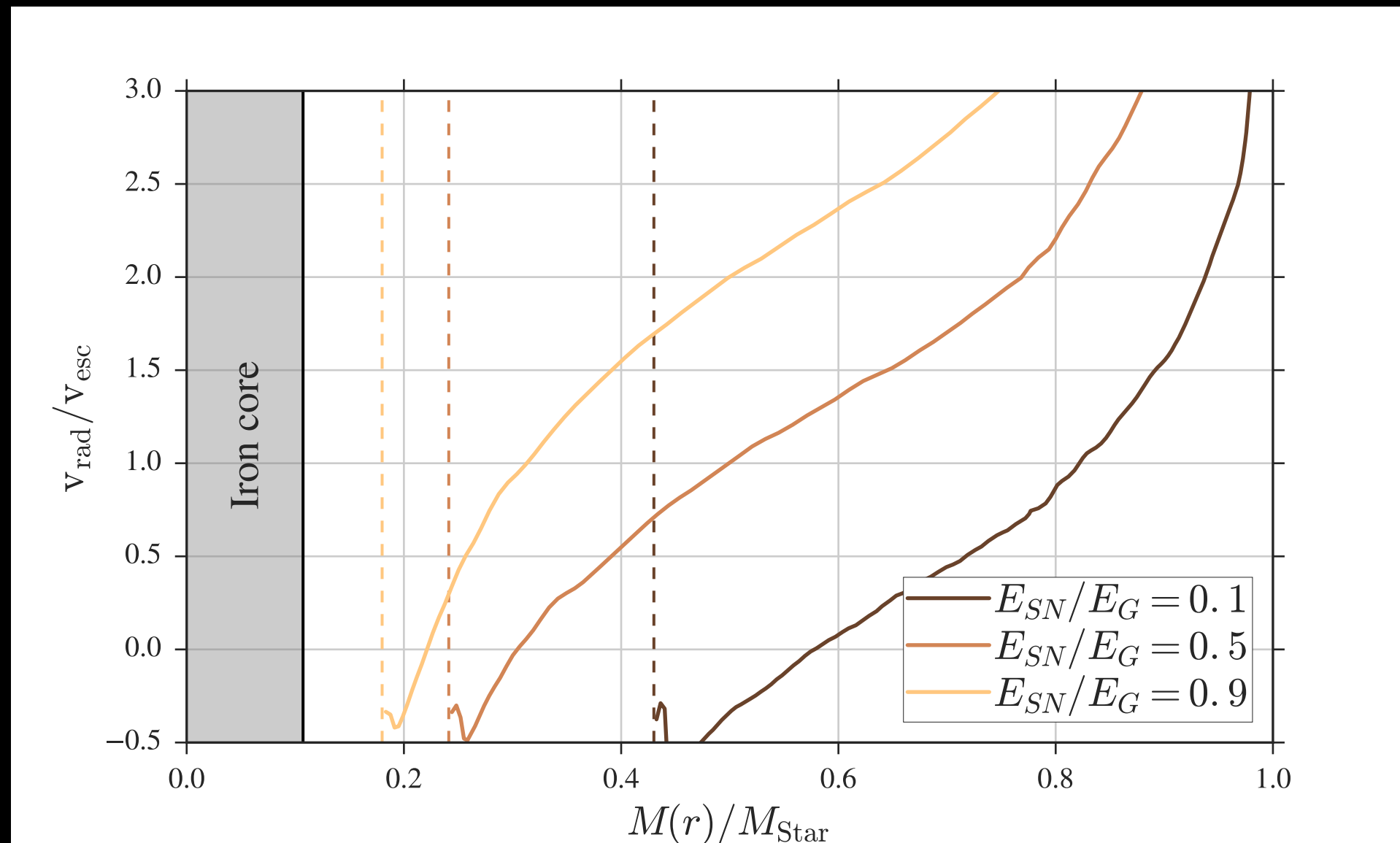
Difference with separation



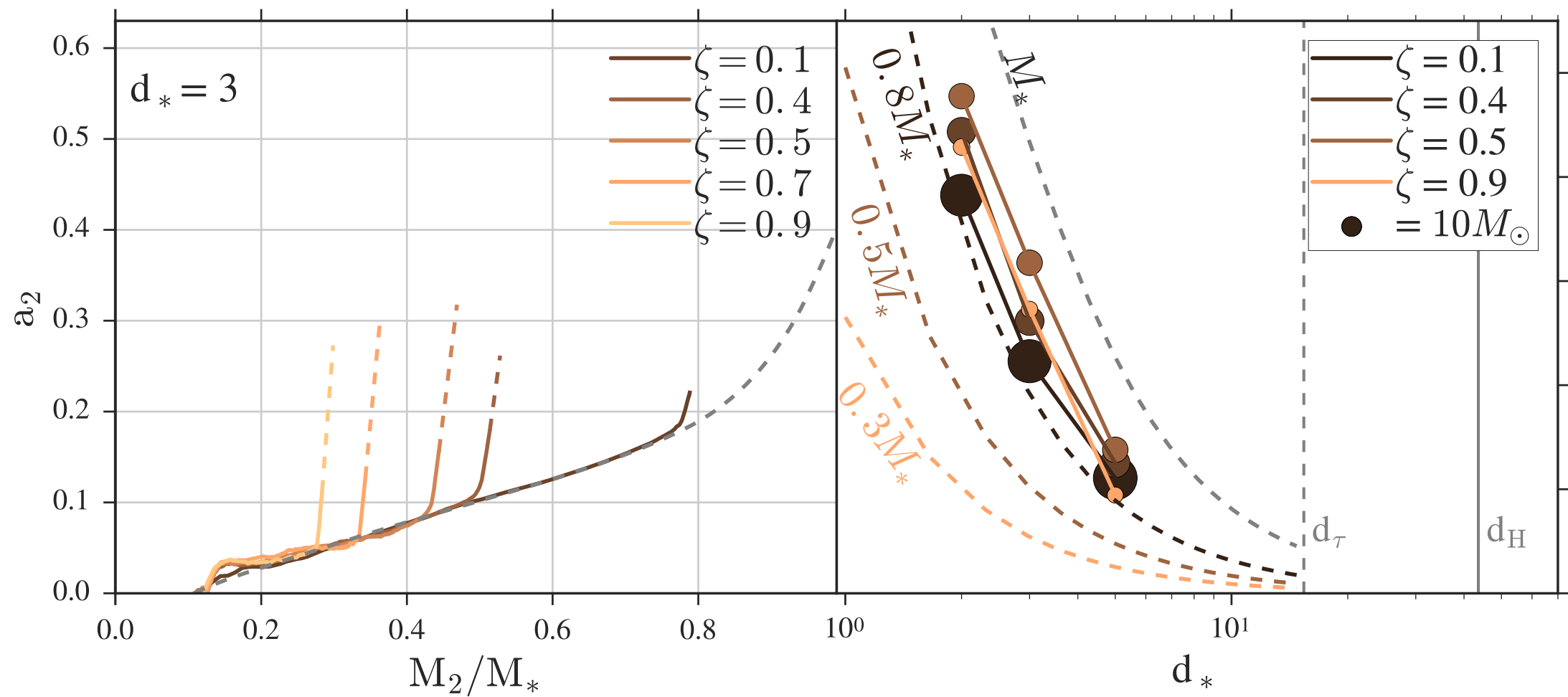
Difference with energy



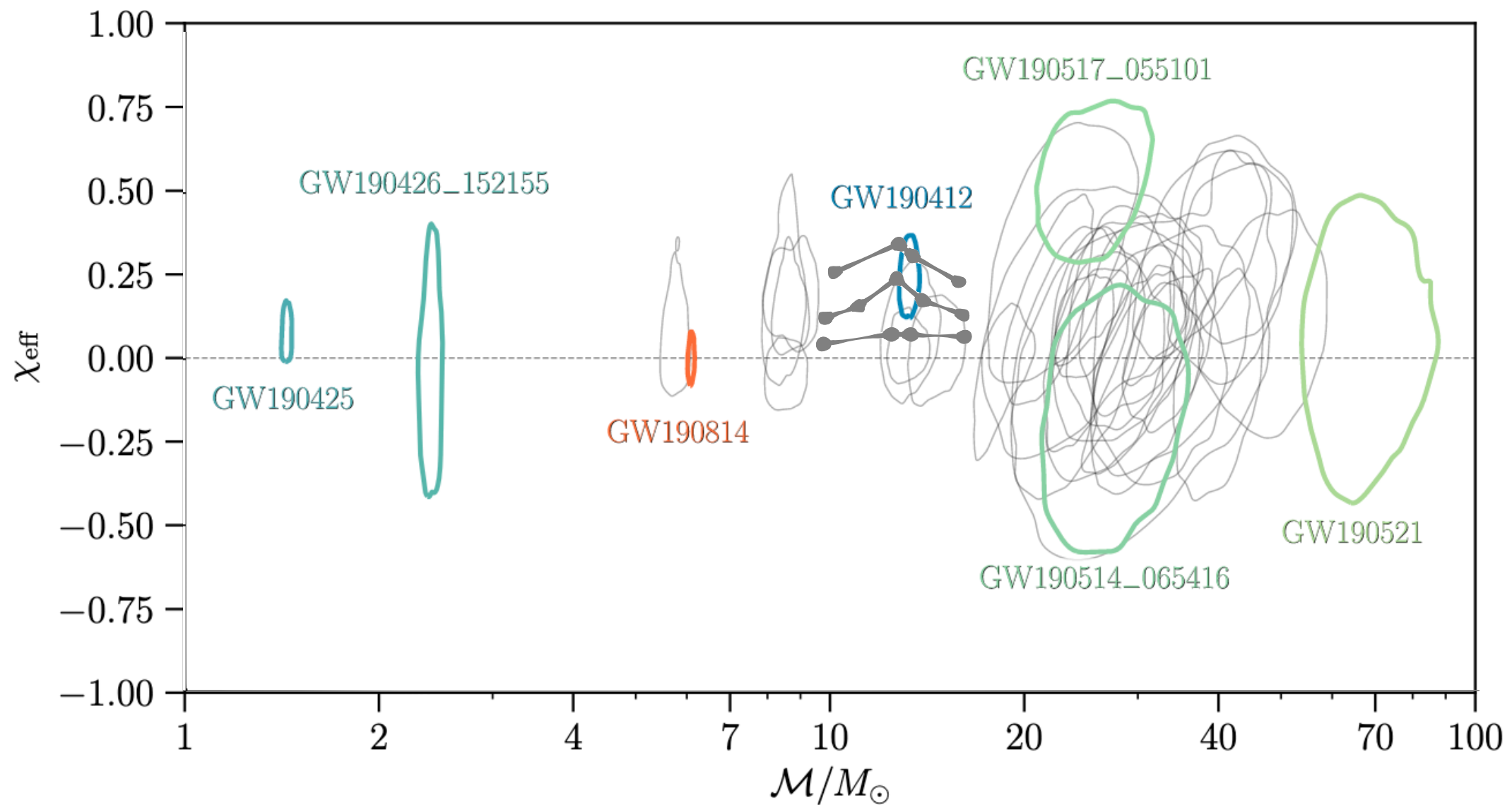
Difference with energy



Comparing with direct collapse



Comparing to GW events



Thank you