Annual report 2024: Ewa L. Łokas

Papers:

- Semczuk, M., Łokas, E. L., de Lorenzo-Cáceres, A., Athanassoula, E. "A new tidal scenario for double bar formation" 2024, MNRAS, 528, L83

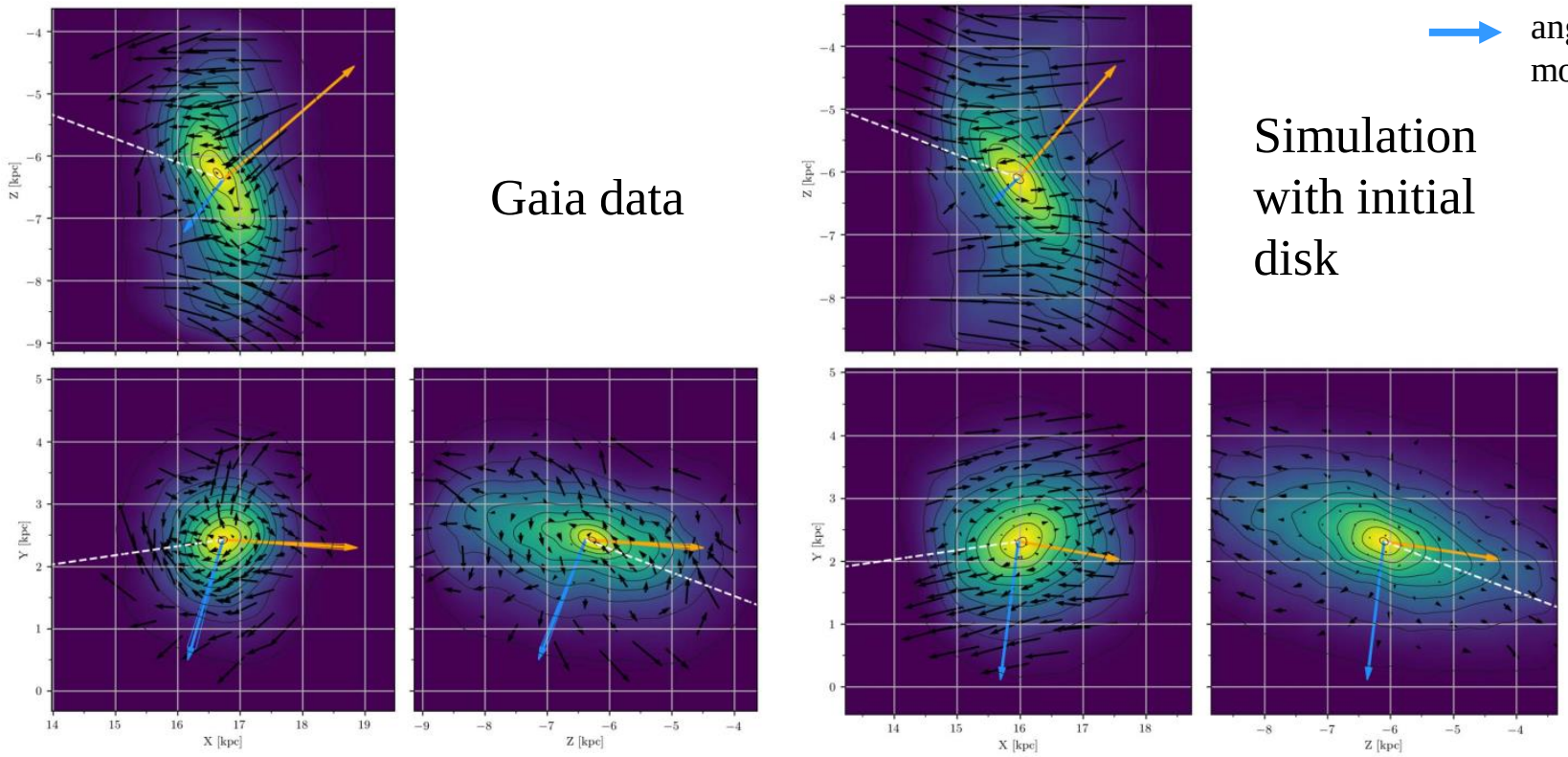
- Łokas, E. L. "A Sagittarius-like simulated dwarf spheroidal galaxy from TNG50" 2024, A&A, 687, A82

- Łokas, E. L. "On the nature of buckling instability in galactic bars" 2025, A&A, submitted

Sagittarius dSph galaxy

velocity

angular momentum



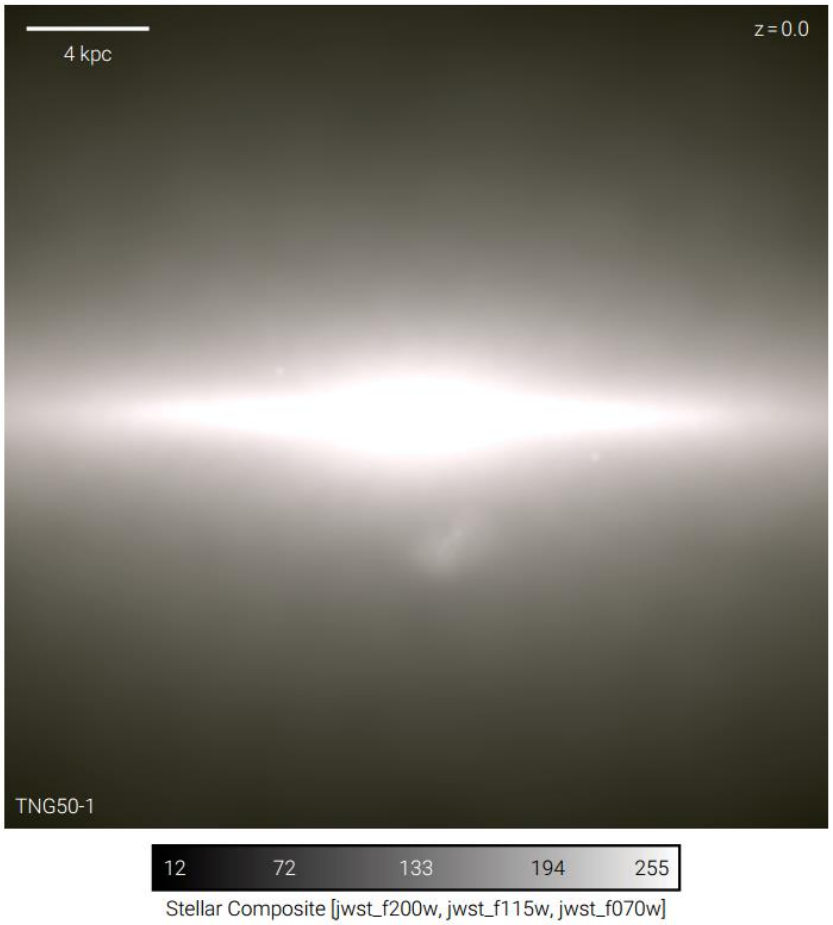
Gaia data

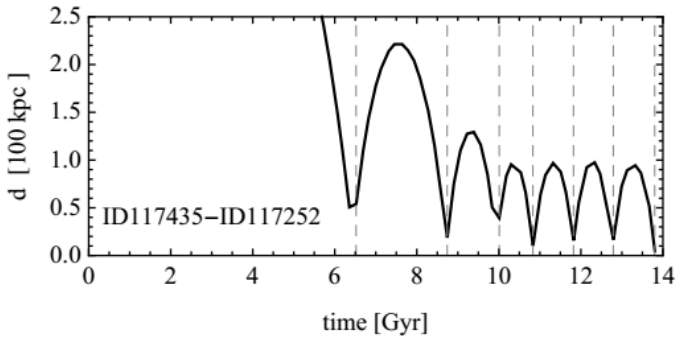
Simulation with initial disk

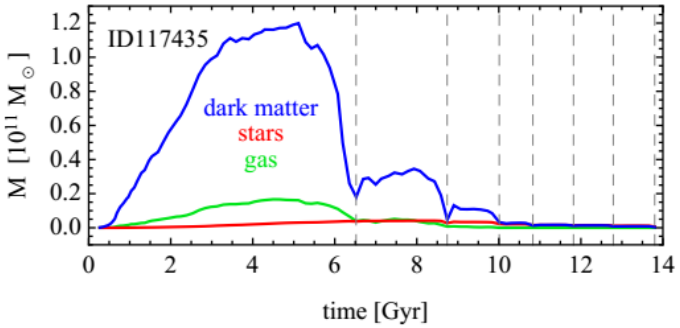
Surface density and kinematics in galactocentric coordinates

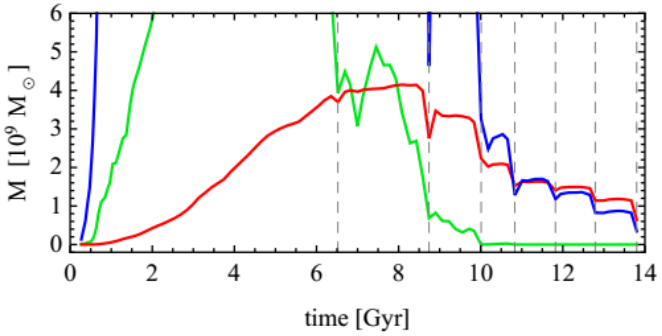
del Pino et al. 2021

Analog of the Sagittarius dwarf from Illustris TNG50

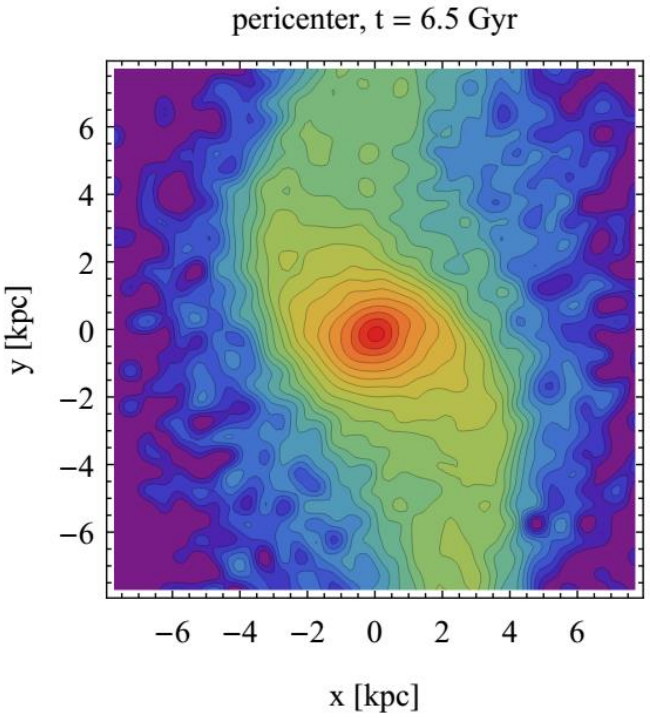


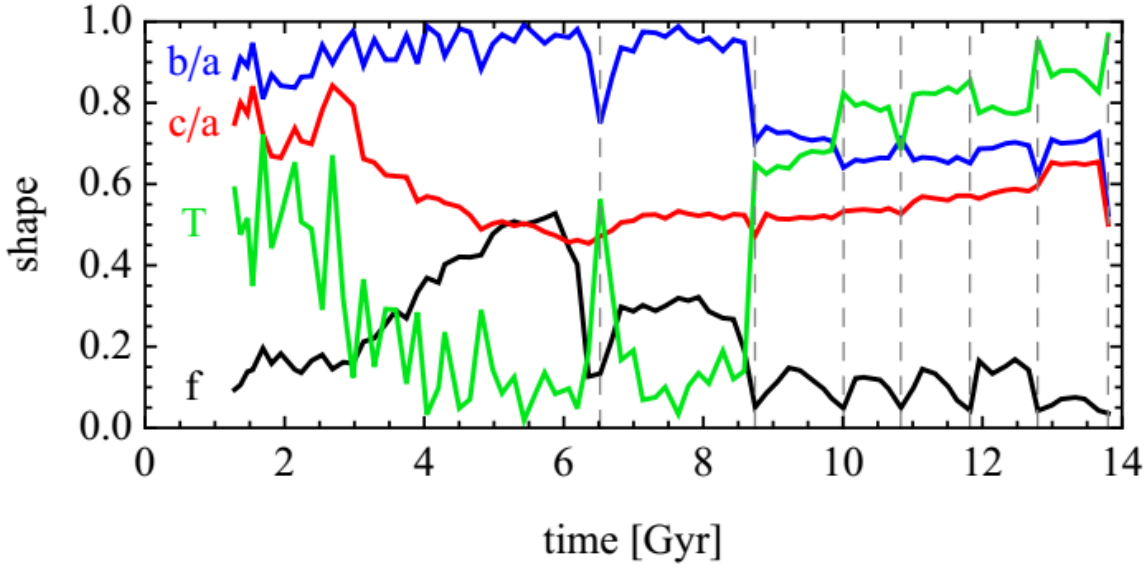


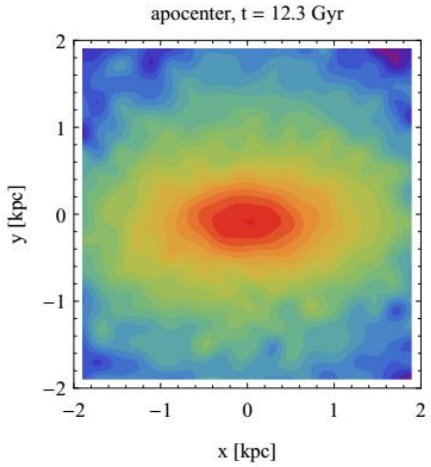


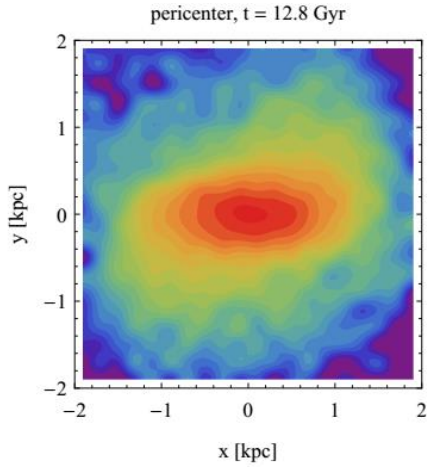


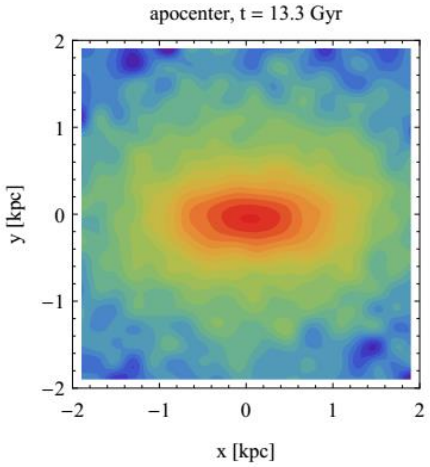
Morphological evolution

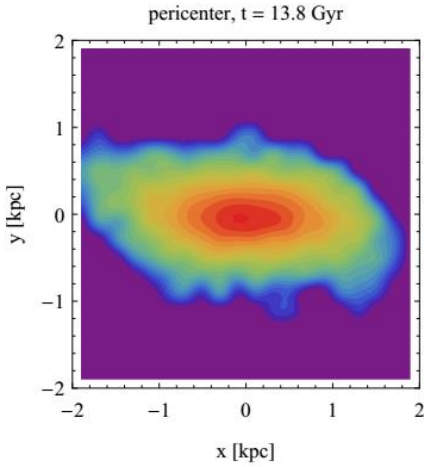


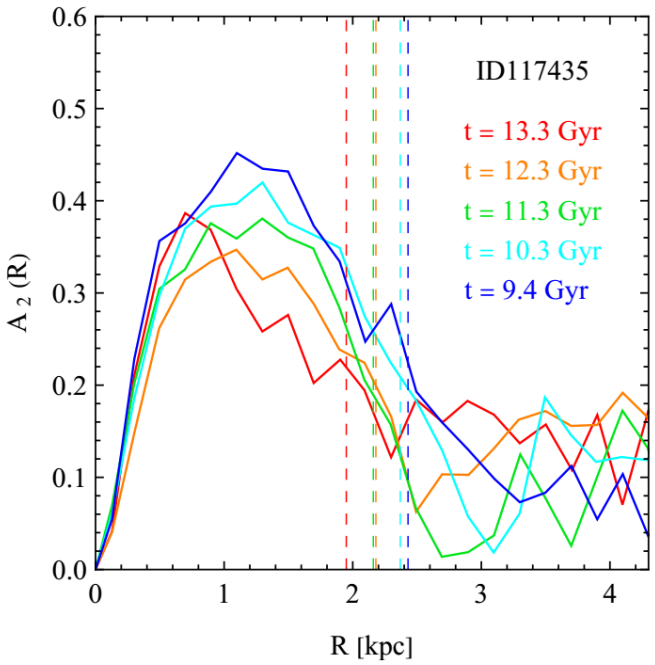






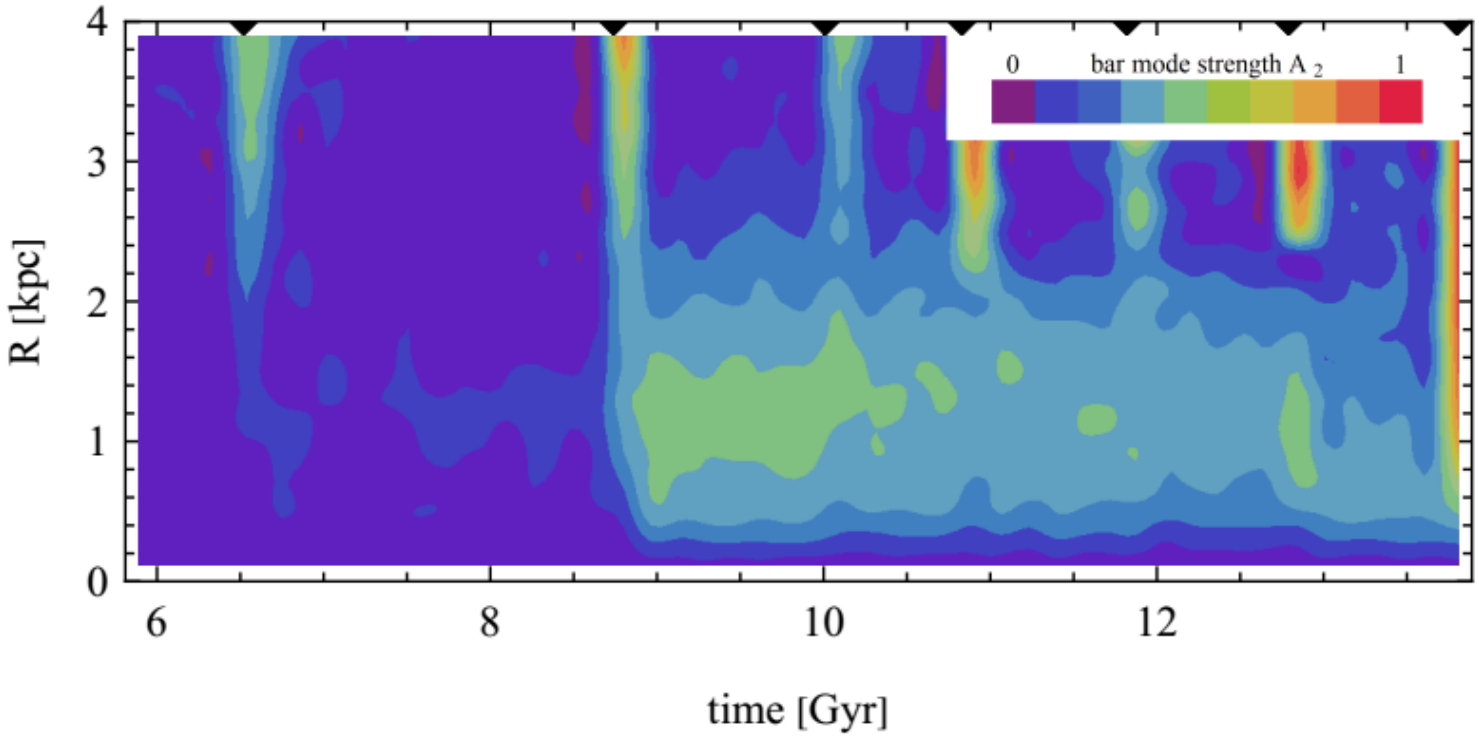




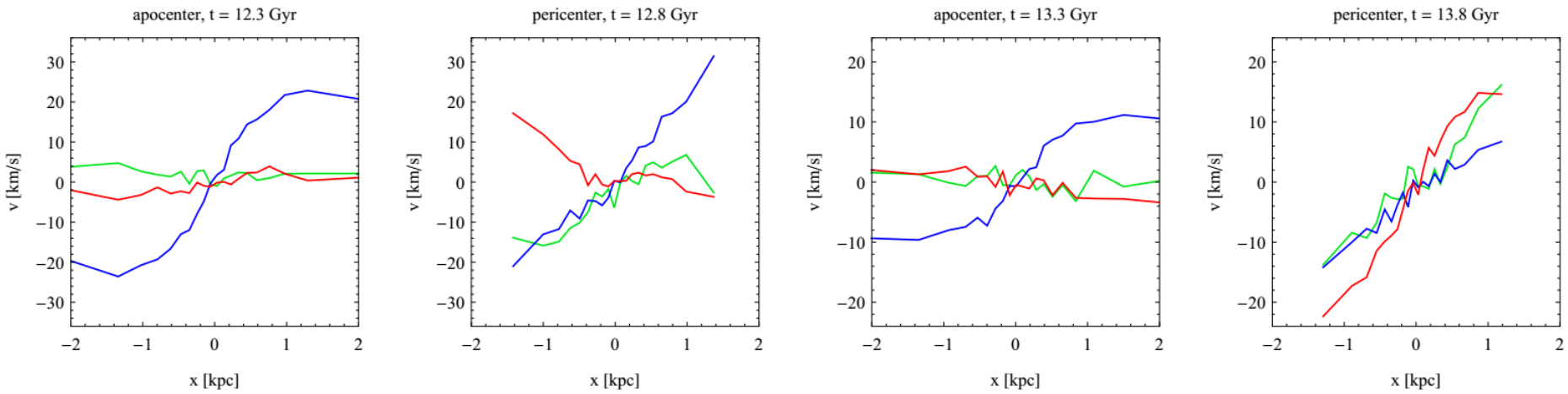


Evolution of the bar

The bar formed at the second pericenter passage becomes weaker and shorter in time

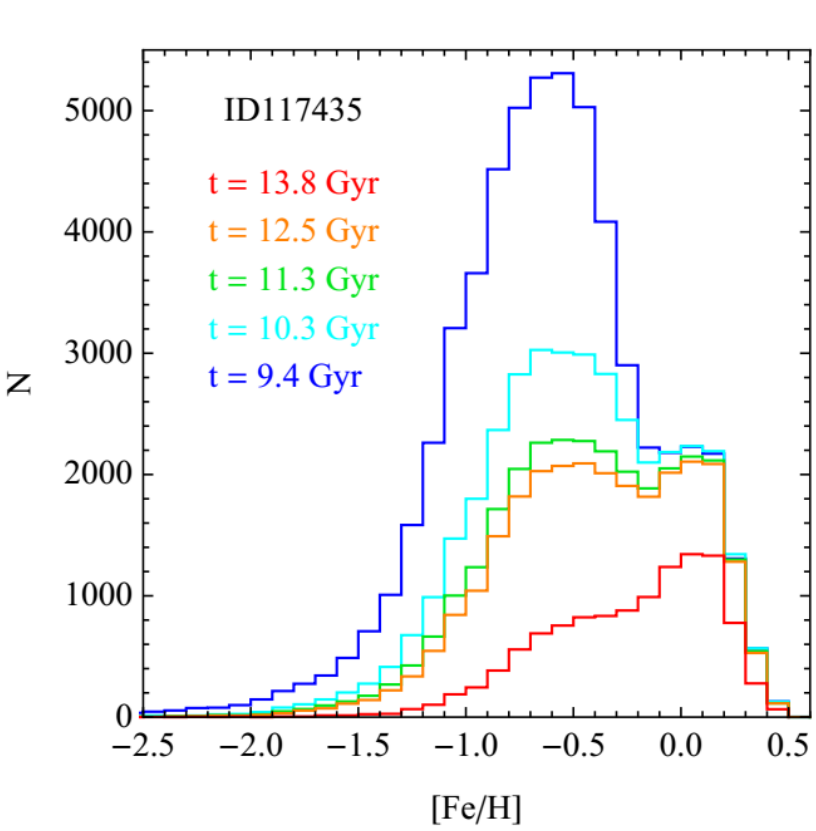


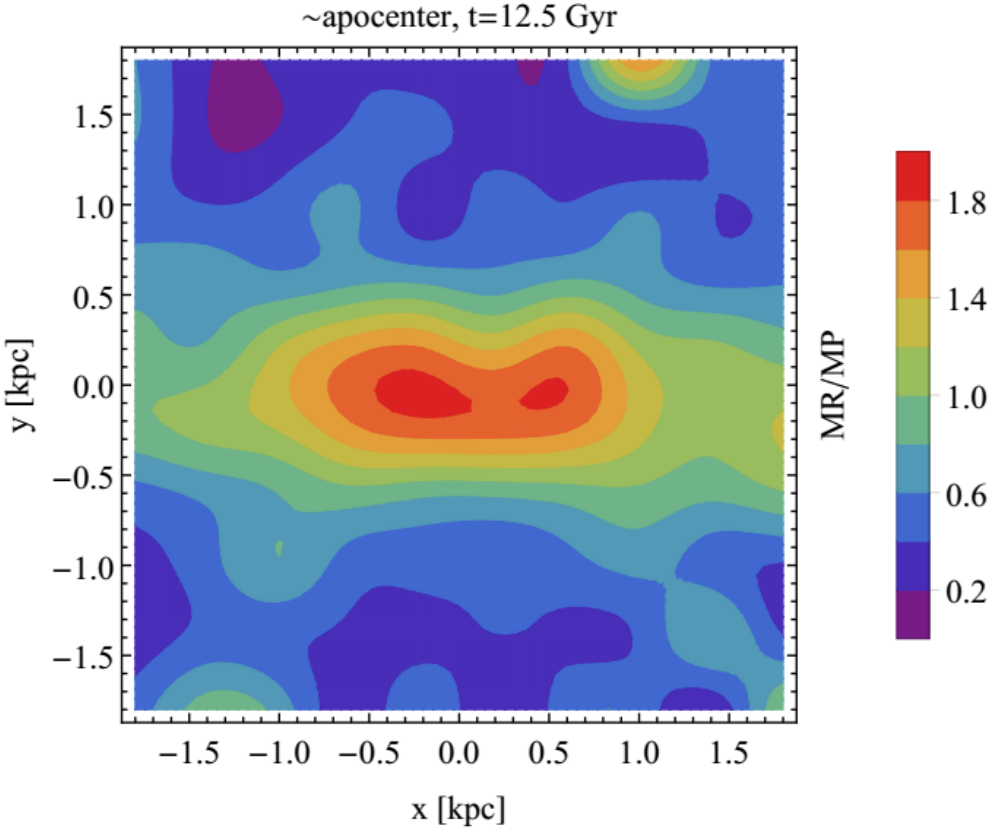
Intrinsic and tidally induced rotation



At the end of evolution the tidally induced rotation is larger than the intrinsic rotation originating from the progenitor disk

Evolution of metallicity





The dwarf becomes more metal rich in time as the metal-poor stars from the outskirts are stripped, but preserves the metallicity gradient

Other activities

- 3 presentations at EAS 2024 in Padova
- 3 seminar talks in CAMK, San Sebastian, Athens
- 3 referee reports for scientific journals
- 3 committees (doctoral, recruitment, astrophysics exam)