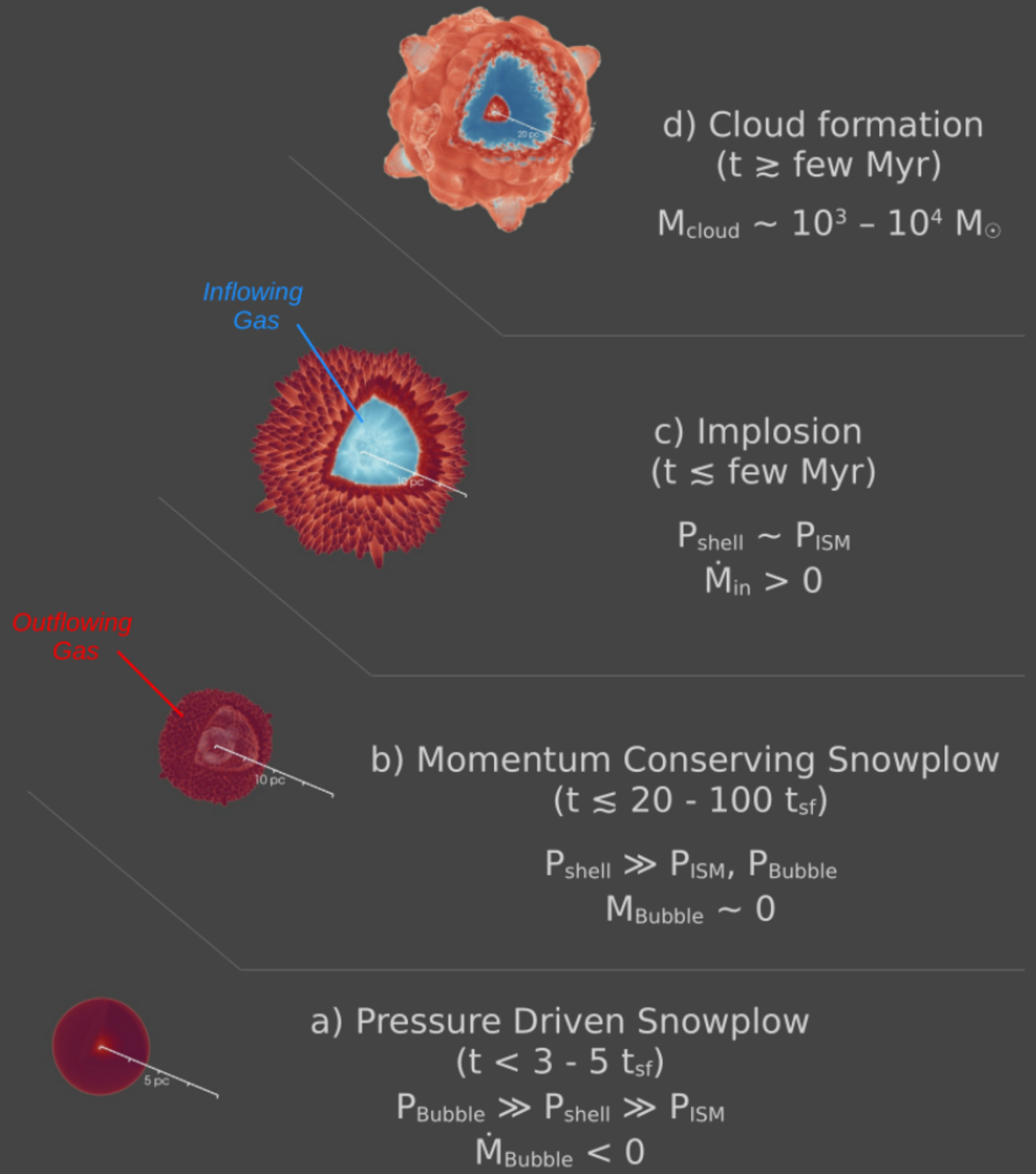
Cloud Formation by Supernova Implosion

Leonard Romano, Manuel Behrendt, Andreas Burkert

New characterization of

radiative stage &

merging with ISM



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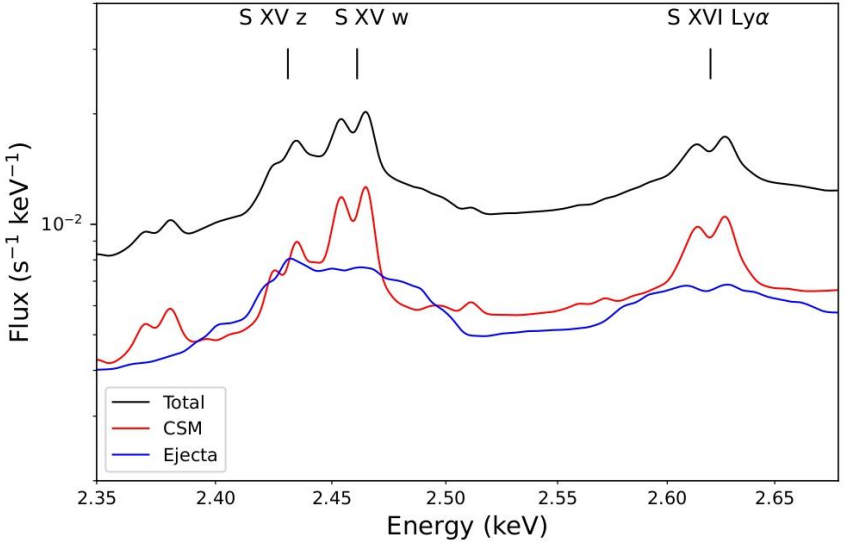
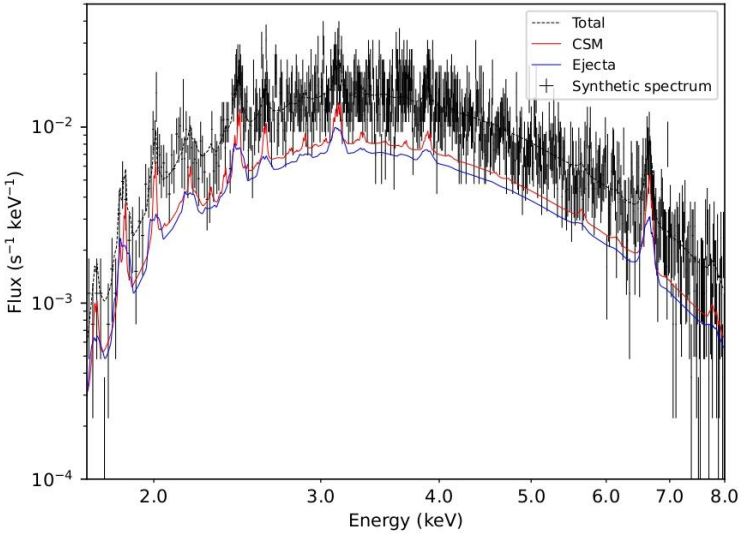
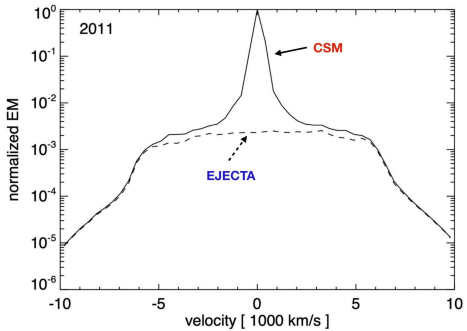
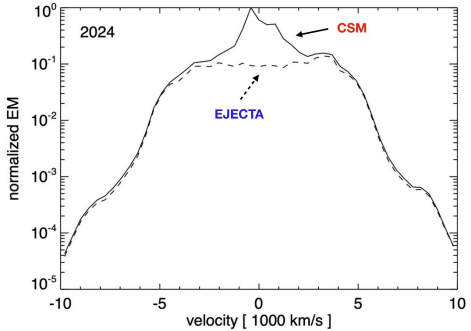
Probing Shocked Ejecta in SN 1987A: A novel diagnostic approach using XRISM-Resolve (S4.22)









- Synthesis of the **XRISM-Resolve PV phase** spectrum using Orlando et al. (2020) MHD sim
- Spectra with largely **Doppler broadened emission lines, due to the ejecta contribution**

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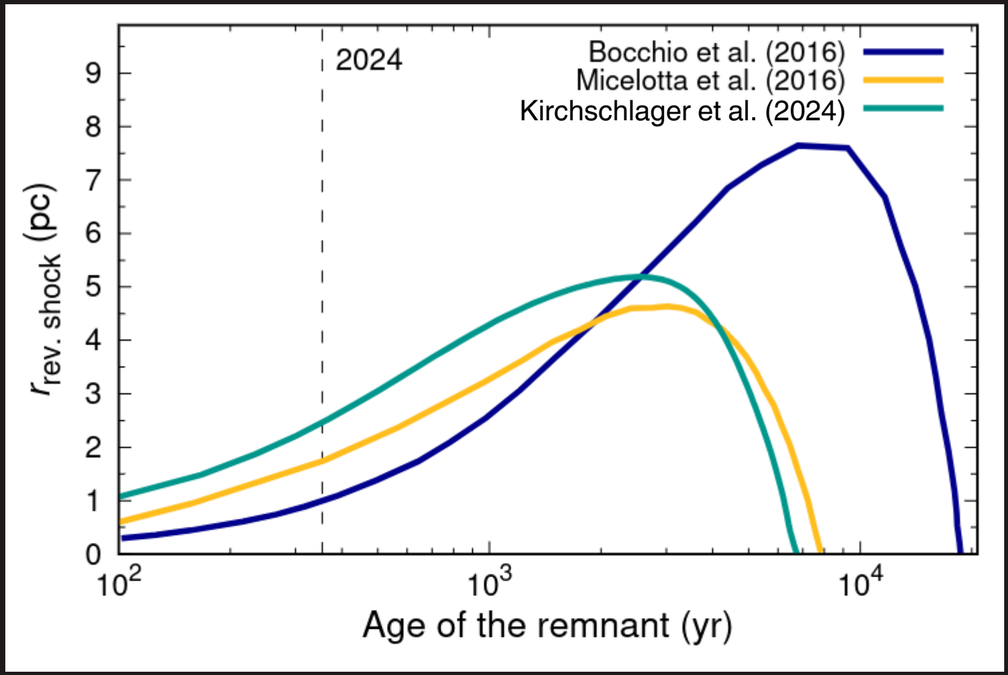
Nina Sartorio

Poster S4.23

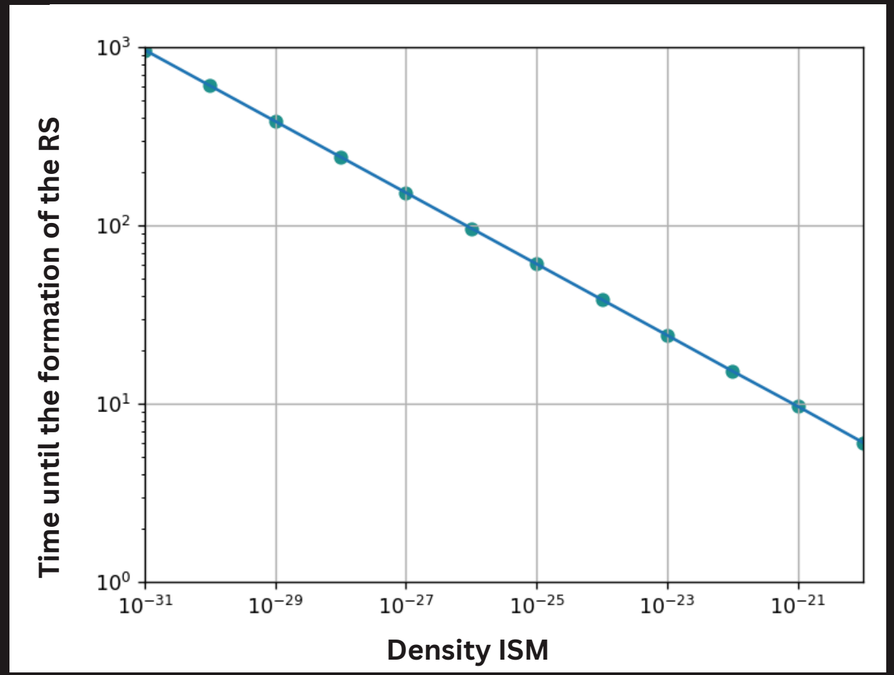
fwo

SN reverse shock evolution → Velocity of the shock
SN reverse shock evolution → Density of the unshocked ejecta
Velocity of the shock → Dust destruction, Emission
Density of the unshocked ejecta → Dust destruction, Emission

Truelove and Mckee:
RS there form the start

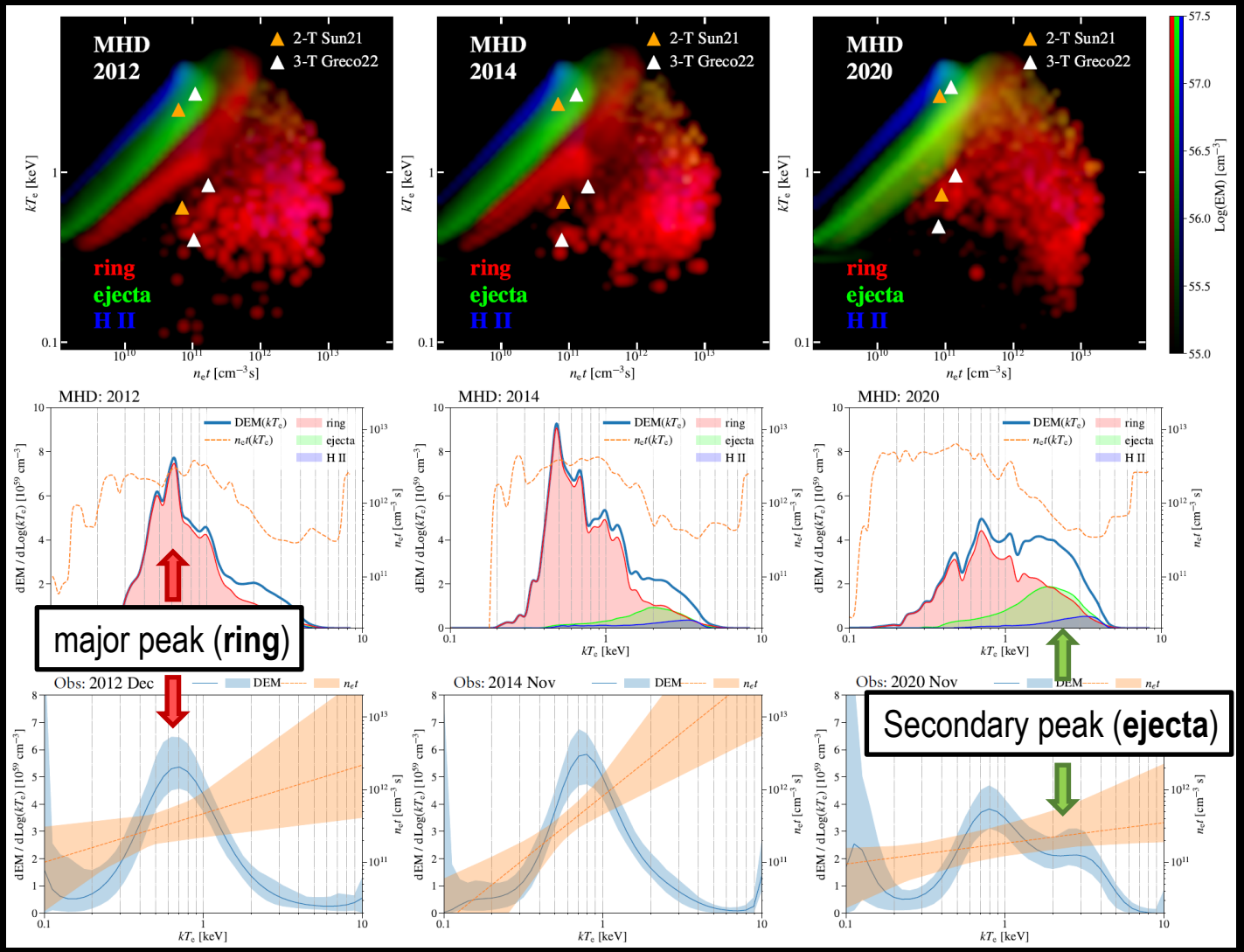


Our analytical solution:
RS formation time computed from ICs

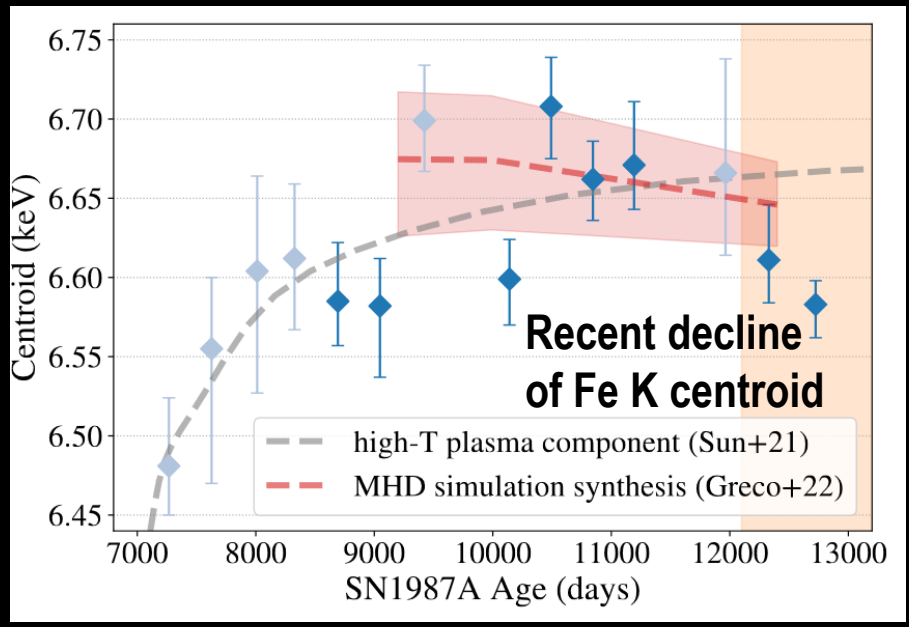


Differential Emission Measure Analysis of the X-ray Gas in SN 1987A: The Fading Ring & The Brightening Ejecta (S4.24)

Lei Sun, Emanuele Greco, Salvatore Orlando, Marco Miceli, Ping Zhou, Yang Chen, Jacco Vink



We performed a detailed DEM analysis of SN 1987A based on the long-term XMM-Newton observations.
The recent emergence of a secondary peak in the DEM function together with the recent decline of the Fe K centroid energy indicate **a brightening ejecta component**.

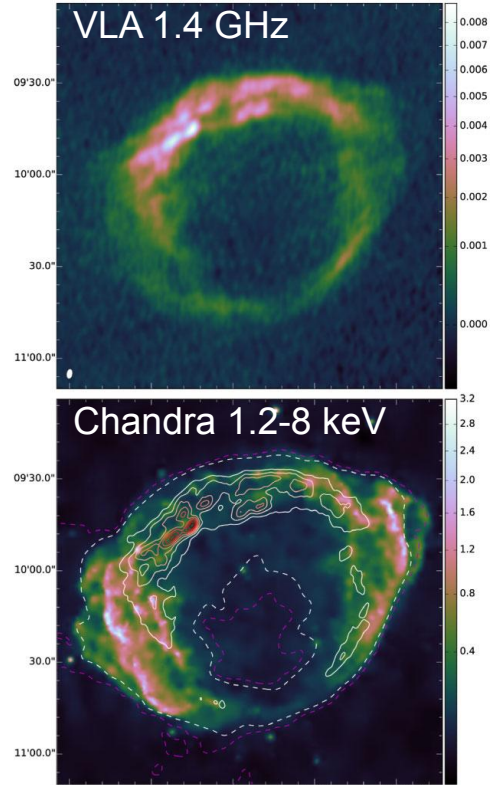


Simulated non-thermal emission of the supernova remnant G1.9+0.3

Villagran, et al. (2024). MNRAS 527, 1601-1611, DOI: 10.1093/mnras/stad322
Presenter: J.C. Toledo-Roy, ICN-UNAM, Mexico City, juan.toledo@nucleares.unam.mx

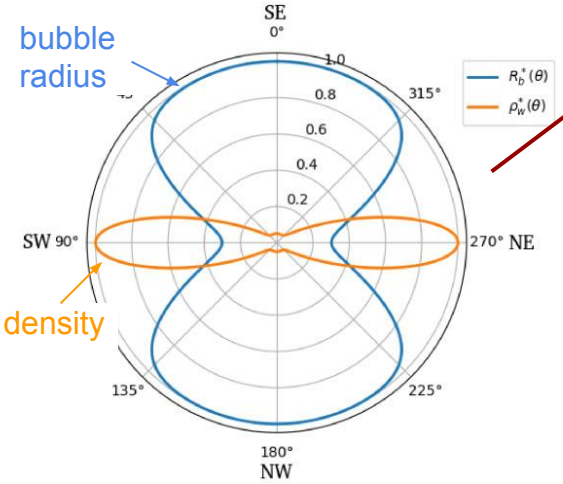
SNRIII, 9-15 June 2024, Chania, Greece

G1.9+0.3: a complex observed morphology



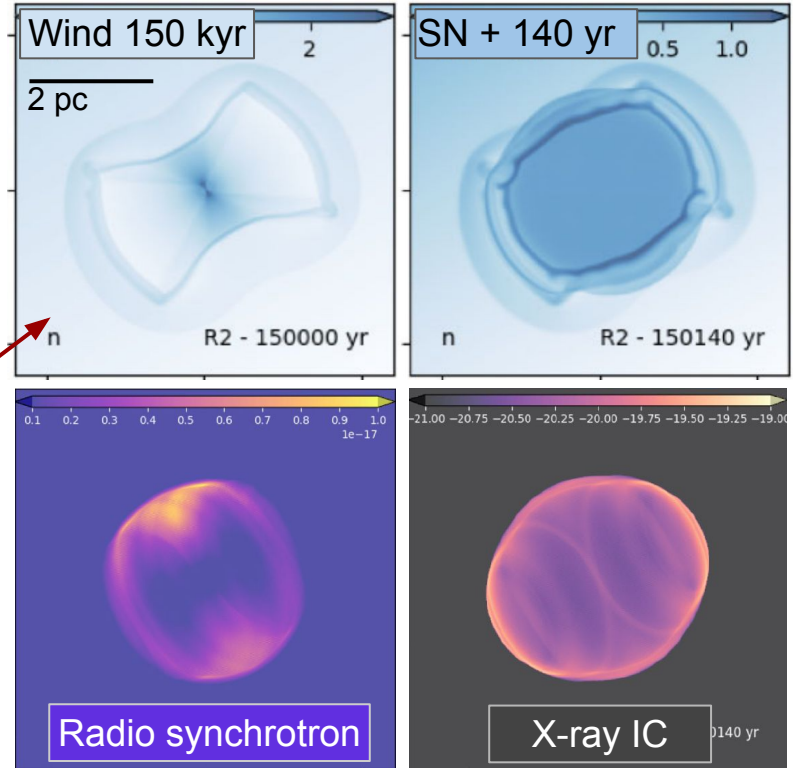
The model

- Pre-SN bipolar circumstellar nebula, either from companion or episodic PN phase
- Type Ia SN, isotropic
- Ambient galactic magnetic field
- Possible density gradient in ISM



Equatorially-dense anisotropic stellar wind, following Mellema et al. (1991)

MHD simulations and results



See the poster for further details!