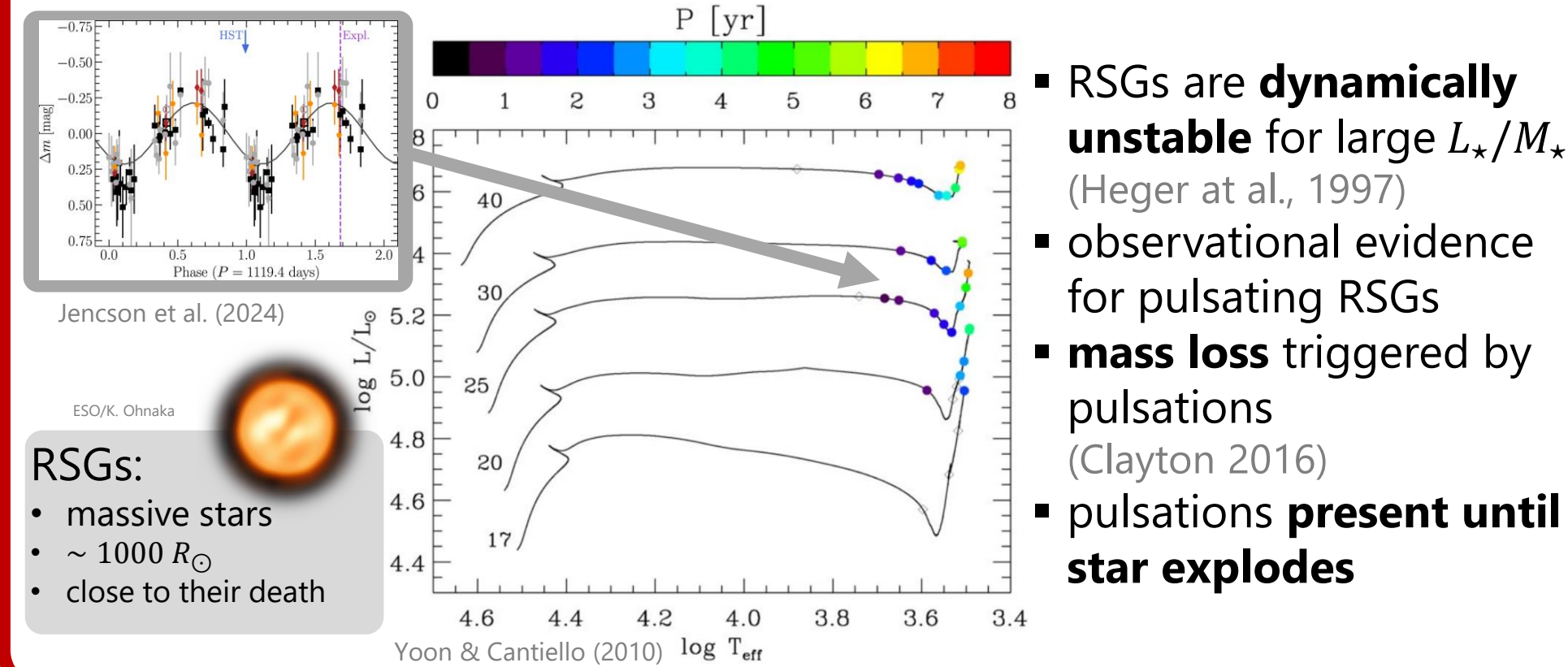


Pulsating Red Supergiants: A New Perspective on Type II Supernova Light Curve Diversity

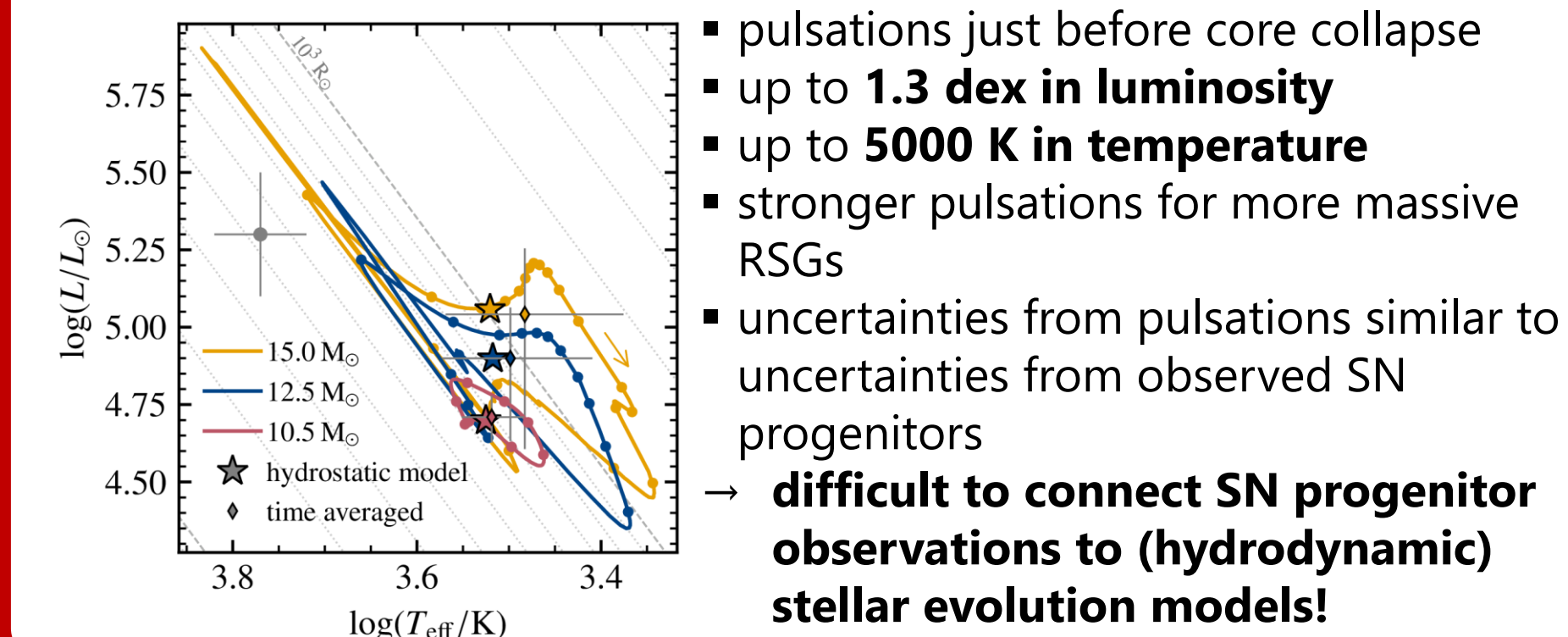
Vincent. A. Bronner, Eva Laplace, Fabian R. N. Schneider, Philipp Podsiadlowski



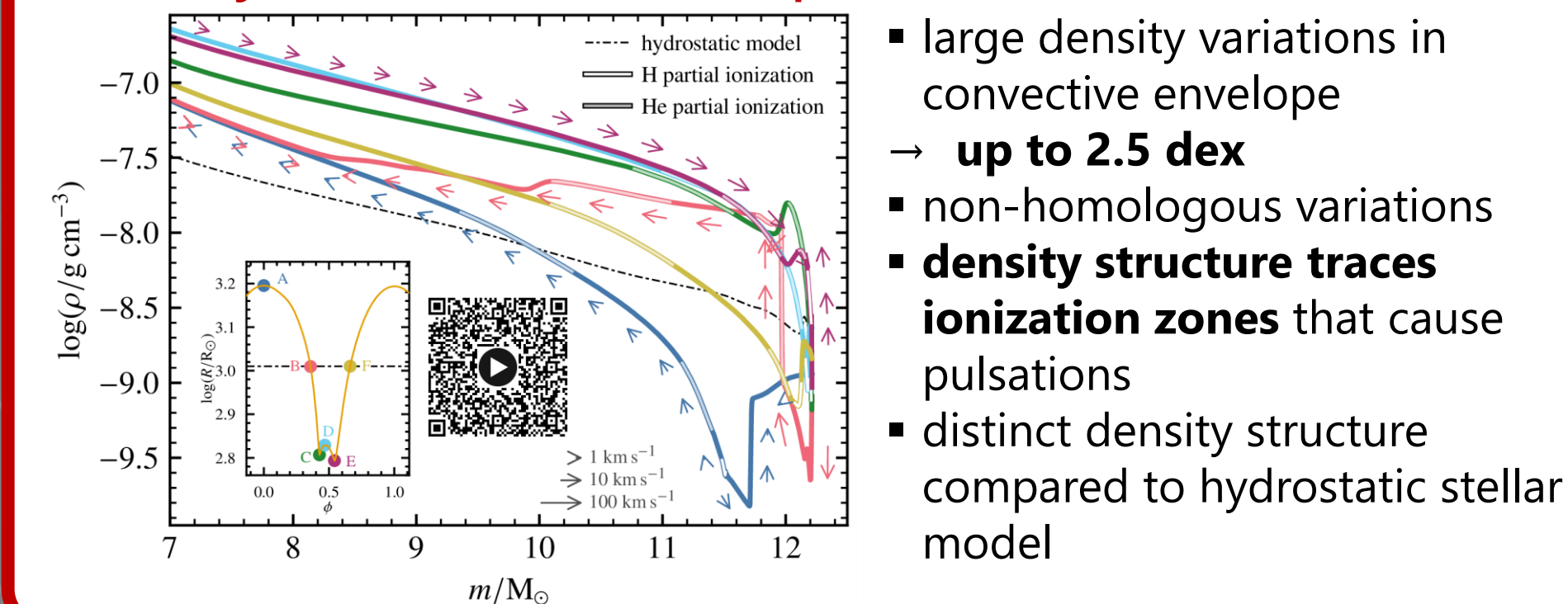
Pulsating red supergiants (RSGs)



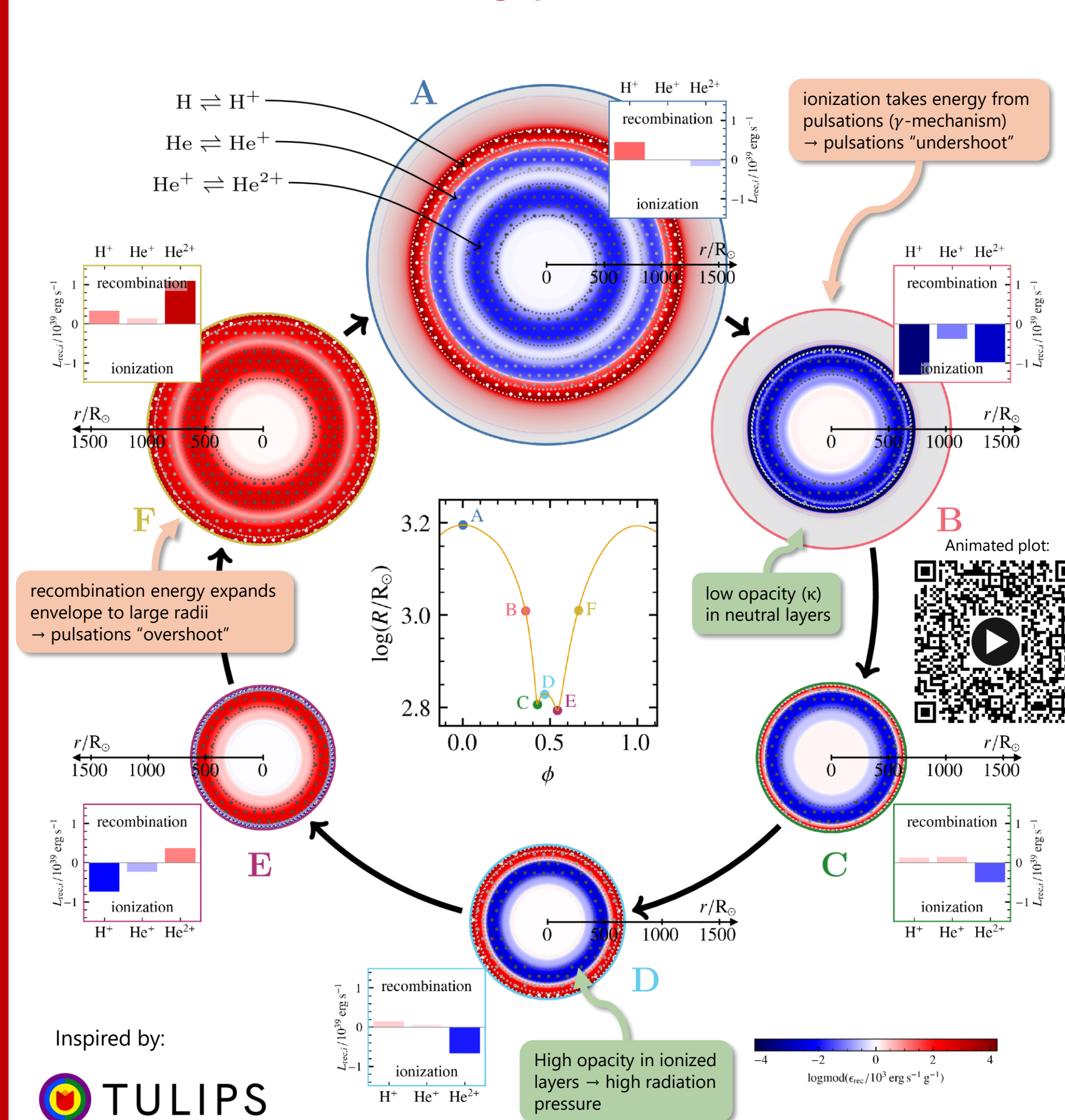
Pulsations in Hertzsprung-Russell diagram



Density variations from pulsations



$\kappa\gamma$ -mechanism driving pulsations

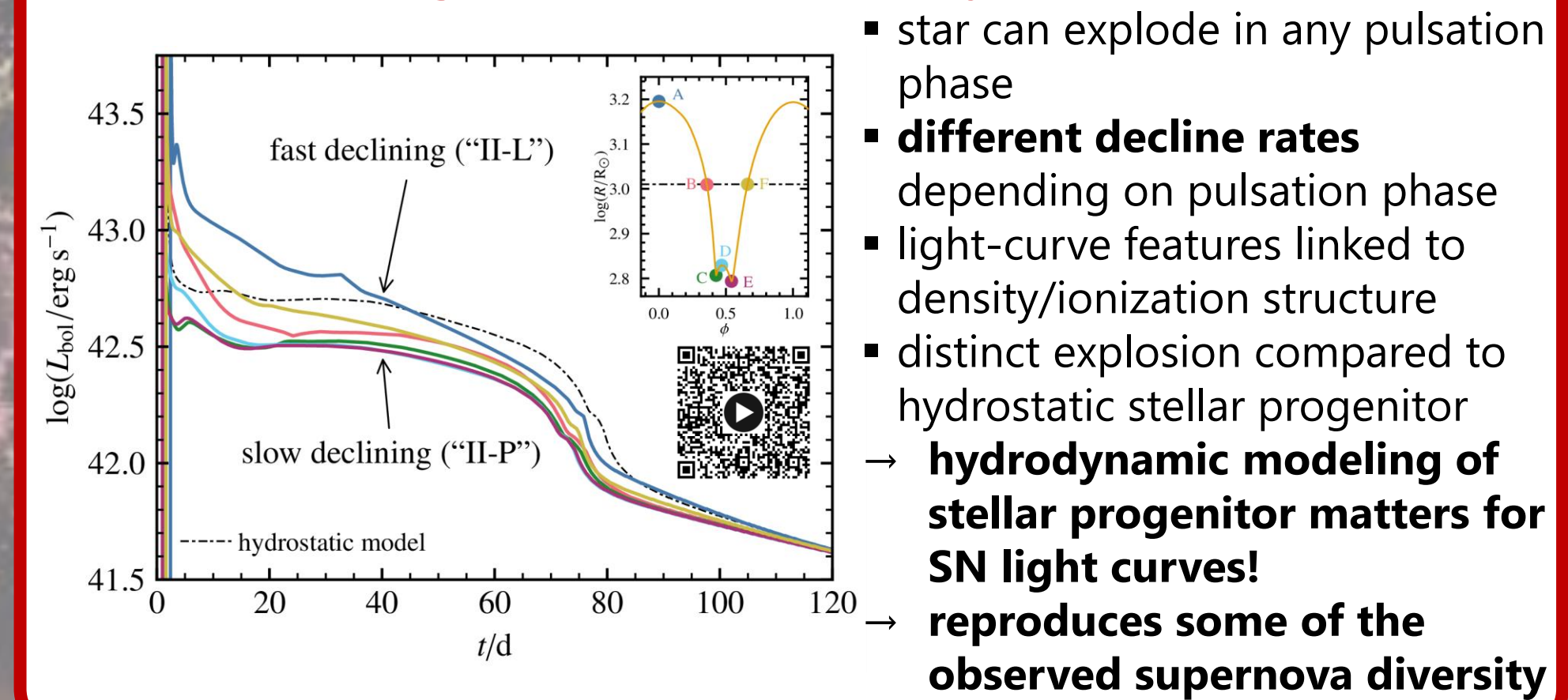


2 new papers on arXiv this Monday

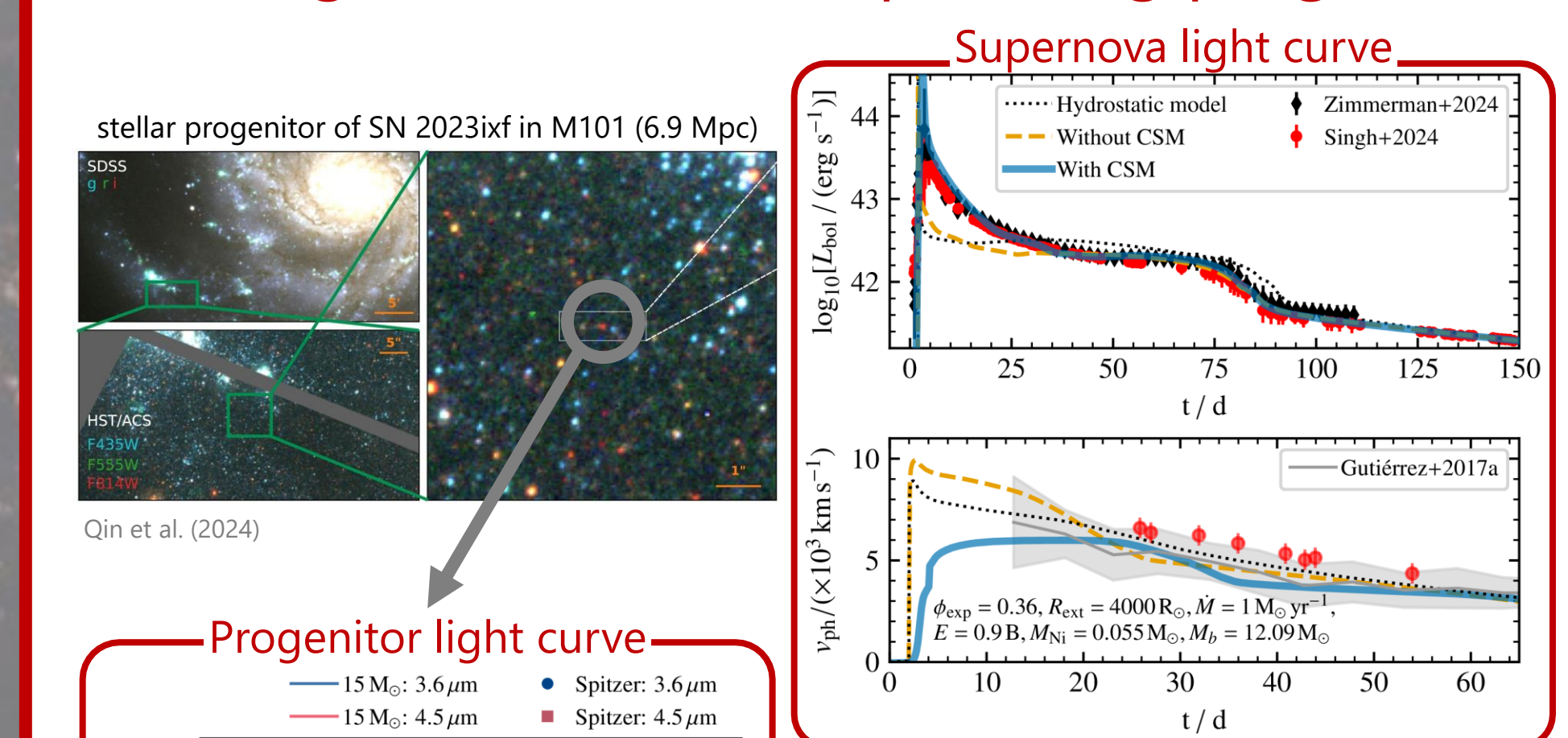
Bronner, Laplace et al. 2025 Laplace, Bronner et al. 2025



Supernova light-curve diversity



Modeling SN 2023ixf with pulsating progenitor



- progenitor light curve **well reproduced by pulsating, dust-enshrouded RSG**
- supernova light curve well reproduced by pulsating RSG in **contracting phase**
- circum-stellar material (CSM) needed to reproduce early-time light curve → **CSM from pulsations**