

EP 13: Astrophysics II - Massive stars: Evolution, Winds and Pulsation

Zeit: Freitag 9:00–10:30

Raum: BSZ - Pabel HS

Hauptvortrag EP 13.1 Fr 9:00 BSZ - Pabel HS
Instabilities in the modelling of massive stars — ●CYRIL GEORGY — Geneva Observatory, Geneva University, Geneva, Switzerland

In this review, I will discuss how instabilities are included in state-of-the-art stellar evolution codes. In particular, I will review the status of the modelling of convection and instabilities linked to rotation. I will highlight the uncertainties linked to this modelling and discuss how hydrodynamics simulations can help in improving our understanding of these instabilities.

Hauptvortrag EP 13.2 Fr 9:30 BSZ - Pabel HS
Atmospheres and winds of massive stars — ●SERGIO SIMON-DIAZ — Instituto de Astrofísica de Canarias, La Laguna, Tenerife, Spain
 TBD

EP 13.3 Fr 10:00 BSZ - Pabel HS
Pulsations as a mass-loss trigger in B-type supergiants — ●MICHAELA KRAUS¹, LYDIA CIDALE², MAXIMILIANO HAUCKE², ANNA ARET^{1,3}, INDREK KOLKA³, DIETER NICKELER¹, and SANJA TOMIĆ¹ — ¹Astronomical Institute, Czech Academy of Sciences, Ondřejov, Czech Republic — ²National University of La Plata, La Plata, Argentina — ³Tartu Observatory, Tõravere, Estonia

The evolutionary path of massive stars from the main-sequence to their deaths as supernovae is still most uncertain. It comprises various extreme transition phases, in which the stars shed huge amounts

of material into their environments, typically via episodic, sometimes even eruptive events. These objects are luminous super- or hypergiants populating the upper, luminous part of the HR diagram and spreading from spectral type O to F or even later. As mass-loss is crucial for the fate of a star, understanding the mechanisms behind mass ejection phases and exploring the mass lost during such events is essential.

We focus on B supergiants which are known to display photometric and spectroscopic variability which has been suggested to be linked to pulsations. To elucidate the influence of pulsations on their mass-loss behavior we initiated a spectroscopic monitoring campaign. Our analysis reveals that B supergiants on a blue-loop evolution tend to pulsate in multiple modes, including radial strange-modes which are known to facilitate mass-loss. Moreover, we find that these stars display variable mass-loss on time-scales that correlate with the suspected period of strange mode pulsation, suggesting a tight relation between strange modes and phases of enhanced mass loss in these objects.

EP 13.4 Fr 10:15 BSZ - Pabel HS
Multi-Wavelength Observations of Astrospheres — ●DOMINIK BOMANS and KERSTIN WEIS — Astronomical Institute, Ruhr-University Bochum, Germany

Stars with supersonic motions relative to the surrounding interstellar medium (ISM) and stars at rest in a supersonically moving ISM both form bow shock nebulae, which allow the derivation of otherwise difficult to determine parameters of the stellar wind and the ISM. In this talk I will discuss observations of a few different cases. I will also comment on the effects of the interstellar magnetic field and discuss low frequency radio continuum emission of bow shock nebulae.