

9<sup>th</sup> Heidelberg Astronomy Summer School:

# Frontiers of Stellar Structure and Evolution

22 – 26 September 2014

organized by the

*International Max Planck Research School (IMPRS) for  
Astronomy and Cosmic Physics at the University of Heidelberg*

- Invited Lecturers:**    **Robert Izzard** (University of Bonn)  
                                  **Amanda Karakas** (Australian National University)  
                                  **Hans Kjeldsen** (Aarhus University)  
                                  **Maurizio Salaris** (Liverpool John Moores University)  
                                  **Maxime Viallet** (MPI for Astrophysics, Garching)
- SOC:**                        Hans-Guenter Ludwig & Norbert Christlieb (ZAH/LSW)
- Location:**                Max Planck conference center (“Max-Planck-Haus”),  
                                  Gerhard-Hauptmann-Str. 36, 69120 Heidelberg, Germany
- Registration:**            Monday, 22 September 2014, 8:30-13:30

## School program

### *Monday, 22 September 2014*

- 10:30 – 11:00 Welcome address, organisational remarks  
                                  (*Hans-Guenter Ludwig, Christian Fendt*)
- 11:00 – 12:30 **Stellar structure and evolution** (*Maurizio Salaris*)
- 12:30 – 14:30 Lunch
- 14:30 – 16:00 **3D modelling of stellar interiors** (*Maxime Viallet*)
- 16:00 – 16:30 Coffee break
- 16:30 – 18:00 **Exercises: Numerical methods for hyperbolic partial differential equations** (*Maxime Viallet*)

### *Tuesday, 23 September 2014*

- 09:00 – 10:30 **Stellar structure and evolution** (*Maurizio Salaris*)
- 10:30 – 11:00 Coffee break
- 11:00 – 12:30 **Population synthesis** (*Robert Izzard*)
- 12:30 – 14:30 Lunch
- 14:30 – 16:00 **Asteroseismology** (*Hans Kjeldsen*)
- 16:00 – 16:30 Coffee break
- 16:30 – 18:00 **Exercises: Stars & stellar evolution with Window To The Stars** (*Robert Izzard*)
- 18:30 – 22:00 Dinner at the Observatory LSW, discussion, guided tours

### ***Wednesday, 24 September 2014***

09:00 – 10:30 Stellar structure and evolution (*Maurizio Salaris*)

10:30 – 11:00 Coffee break

11:00 – 12:30 Population synthesis (*Robert Izzard*)

12:30 – 13:30 Lunch

14:00 – 18:00 Excursion: Hike at Neckarsteinach, transportation on the Neckar River

### ***Thursday, 25 September 2014***

09:00 – 10:30 Nucleosynthesis and stellar yields (*Amanda Karakas*)

10:30 – 11:00 Coffee break

11:00 – 12:30 Asteroseismology (*Hans Kjeldsen*)

12:30 – 14:30 Lunch

14:30 – 15:00 Q & A session on nucleosynthesis and stellar yields (*Amanda Karakas*)

15:00 – 16:00 Exercises: Stars & stellar evolution with Window To The Stars - cont'd  
(*Robert Izzard*)

16:00 – 16:30 Coffee break

16:30 – 19:00 Exercises: What controls the morphology of the horizontal branch in  
stellar populations? (*Maurizio Salaris*)

20:00 Pub evening

### ***Friday, 26 September 2014***

09:00 – 10:30 Nucleosynthesis and stellar yields (*Amanda Karakas*)

10:30 – 11:00 Coffee break

11:00 – 12:30 Asteroseismology (*Hans Kjeldsen*)

12:30 – 14:30 Lunch

14:30 – 15:00 Science talk: Deciphering the evolution of star clusters with star cluster  
systems (*Genevieve Parmentier, ZAH/ARI*)

15:00 – 15:30 Science talk: Theory of 3D stellar model atmospheres (*Hans-Günter  
Ludwig, ZAH/LSW*)

15:30 – 16:00 Science talk: 3D stellar models and observations of stars: from theory  
to applications (*Maria Bergemann, MPIA*)

16:00 – 16:10 Farewell (*Norbert Christlieb*)

**16:10 – 16:30 Departure**