

**Betelgeuse Workshop 2012**  
**Paris Observatory**  
**Nov. 26-29, 2012**  
**Second announcement**

Mass loss from evolved massive stars is a major contributor to the chemical enrichment of the interstellar medium, the Galaxy, and ultimately the Universe. To have a clear view of their cosmic impact, it is essential to understand their physics, from the photosphere to the interstellar medium (ISM). The violent convective motions, low surface gravity, and high brightness combine to trigger an intense stellar wind. As the distance from the star increases, the ejected material forms molecules, then dust particles. But this general picture is still fragmentary. For instance, the structure of the convection, the composition and molecular content of the wind, the role of the magnetic field, or the chemical evolution of dust particles (surface chemistry, growth of dust grains) remain poorly known.

Thanks to its proximity and brightness, Betelgeuse is a particularly important fiducial object to study in detail the physical phenomena at play in red supergiants (RSGs). Impressive progress has been made recently on our understanding of this star, thanks to new observations from the VLT, Herschel, VLA, and other facilities, and important advances in theory and numerical simulations – for example 3D hydrodynamic convection simulations and mass loss models.

The goal of the workshop is to assemble a comprehensive description of Betelgeuse, to study how the different regions interact, and finally to understand how objects of this class are functioning.

We aim at a genuine workshop format with many opportunities for exchanges among about 50 participants who actively carry out research on Betelgeuse, and/or on similar objects. Each session will start with an invited overview talk and will be closed by a discussion.

The workshop venue will be at Paris Observatory. During four days (November 26-29, 2012), about 30 contributions and 20 posters will be presented and discussed. **Because of space limitation, the attendance will be limited to 50 participants.** The posters will be exhibited during the whole workshop. Proceedings will be published in the European Astronomical Society Publications series.

Overview/review contributions, synthesis of past progress, and new observational and modeling results are equally appropriate for this workshop. **Prospective participants are invited to register at the conference website (<http://betelgeuse.sciencesconf.org/>) and to submit a title and an abstract related to the proposed topical sessions before September 15.** The scientific organizing committee will select contributions and posters so that the topics in each session are well balanced. After Sept. 15, the submitted abstracts will only be considered for poster presentations. Multiple contributions are acceptable with the understanding that at most one may be oral and the others will be posters.

The registration fees (200 euros) will include coffee breaks, a visit to the Cassini exhibit, a copy of the proceedings, and a social event. Limited financial support can be provided to young scientists (please contact the LOC on this matter: [betelgeuse@sciencesconf.org](mailto:betelgeuse@sciencesconf.org)).

### Important dates :

- First announcement: June 4, 2012
- Second announcement: July 17, 2012
- Deadline for submitting abstracts: September 15, 2012
- Notification of the selection of oral/poster contributions: October 12, 2012
- Workshop in Paris: November 26-29, 2012
- Deadline for submitting articles for the proceedings: January 31, 2013

### Scientific Organizing Committee:

Andrea Chiavassa	Université Libre de Bruxelles / Observatoire de la Côte d'Azur
Leen Decin	University of Leuven
Andrea Dupree	Harvard Smithsonian Center for Astrophysics
Pierre Kervella	Observatoire de Paris / LESIA
Thibaut Le Bertre	Observatoire de Paris / LERMA
Jacco van Loon	Keele University
Georges Meynet	Observatoire de Genève
Guy Perrin	Observatoire de Paris / LESIA
Stephen Ridgway	National Optical Astronomy Observatory

---

### Preliminary schedule

- Nov. 26, morning:** Registration  
poster exhibit  
Introductory talks by **S. Ridgway** and **G. Meynet**
- Nov. 26, afternoon:** Structure and evolution of massive stars  
Invited review by **S. Ekström**  
poster pop-up session
- Nov. 27, morning:** Atmospheric structure and dynamics (I)  
Invited review by **G. Harper**
- Nov. 27, afternoon:** Atmospheric structure and dynamics (II)  
Invited review by **K. Ohnaka**
- Nov. 27, evening:** Social event
- Nov. 28, morning:** Mass loss mechanisms, dust formation chemistry (I)  
Invited review by **I. Cherchneff**
- Nov. 28, afternoon:** Mass loss mechanisms, dust formation chemistry (II)  
Invited review by **A. Richards**
- Nov. 29, morning:** Red supergiants in galaxies  
Invited review by **E. Levesque**
- Nov. 29, afternoon:** Summary, conclusions and recommendations, by **J. van Loon**