Betelgeuse Workshop 2012
P. Kervella, T. Le Bertre and G. Perrin (eds)
EAS Publications Series, **60** *(2013) 1–2*
www.eas.org

Preface

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 luminosity 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 details 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 – *e.g.* 3D hydrodynamic convection simulations and mass loss models.

The goal of the Betelgeuse 2012 workshop was to assemble a comprehensive description of the different regions constitutive of Betelgeuse, to understand how they interact with each other, and eventually how red supergiants are functioning. The book that you have in hands contains the proceedings from this exciting workshop.

The workshop venue was at Paris Observatory (Nov. 26 to 29, 2012). During four days, forty-three participants, from twelve different countries, discussed and exchanged ideas. Twenty-nine oral contributions and seven posters have been presented and discussed. Each session started with an invited overview talk and closed by a discussion. The posters were exhibited during the whole workshop. On Tuesday 27, the participants benefited from a guided tour by James Lequeux and François Sèvre. They could also visit an exhibit organized there for celebrating Jean-Dominique Cassini (1625-1712; http://expositions.obspm.fr/cassini/) and have access to the 150 years old "Arago" refractor.

The organizers are grateful to the *Région Île-de-France* and to the *Observatoire de Paris* for their generous financial support. We are also grateful to the members of the Scientific Organizing Committee for their enthusiastic and dynamic participation, and to our colleagues of the Local Organizing Committee, without whom nothing would have been possible. Our warm thanks are due also

DOI: 10.1051/eas/1360000

to François Sèvre and James Lequeux for illustrating that we are standing on the shoulders of Giants. And finally, but not the least, we thank all the participants for a productive week, and for writing-up the excellent papers that are collected in this book.

Pierre Kervella, Thibaut Le Bertre and Guy Perrin