Final Stages of Stellar Evolution
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Foreword

Phenomena occurring during the last stages of stellar evolution play a major role in galactic evolution. These are responsible for the metal enrichment of the interstellar medium; supernovae explosions can enhance star formation as a result of the propagation of the shock wave, and contribute in maintaining the hot phase of the interstellar medium at a high temperature; and it is finally possible that a fraction of the dark matter in our Galaxy is made up with residuals of stellar evolution, black holes, neutron stars and cold white dwarfs. End points of stellar evolution are also natural laboratories in which one can for example study the physical properties of ultradense matter or test general relativity.

Because of their huge gravitational potential, the energy release per nucleon due to mass infall onto compact object can be quite larger that that due to nuclear processes. This energy is preferentially emitted in the X-ray domain, and it turns out that the total X-ray luminosity of our Galaxy is dominated by the contribution of accreting sources. Their observation at all wavelengths allows the investigation of a parameter space (gravity, temperature, density, magnetic field) that cannot be attained on Earth. Finally, accretion produces a variety of structures (accretion discs, hot coronae, magnetically collimated flows, jets, particle acceleration, ...) found in many other systems, as *e.g.* active galactic nuclei, but the much smaller distances and time scales makes it easier to study galactic sources than extragalactic ones.

The launch in 1999 of two major X-ray observatories, XMM-Newton and Chandra, the VLT development provide unique opportunities that have led to major advances in our understanding of the physics of compact objects. The organization in September 2001 of the Aussois School on the Final Stages of Stellar Evolution was thus quite topical, and was intended to bring to review a theme at the crossroad of various communities: stellar evolution, galactic chemical evolution, and high energy astrophysics.

More that 30 participants attended this school and benefited from week-long high quality courses that covered present and future high energy observatories, supernovae and supernova remnants, the physics of compact objects, physical processes at high energies, and accretion-ejection processes. We hope that the reader of these proceedings will find the same interest as the audience had in interacting with the speakers. We thank them for the high quality of their courses; we also thank the participants for the friendly atmosphere, the Formation Permanente du CNRS, the Centre National d'Études Spatiales, the Programme National de Physique Stellaire, the Groupement de Recherche Phénomènes Cosmiques de Haute Énergie for funding. We are particularly indebted to Sandrine Langenbacher, Thomas Keller and Jean-Pierre Zahn for taking care of all administrative and organisational aspects. We wish to thank warmly the Director and employees of the Centre Paul Langevin for their competence and hospitality.

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