

# Joint Discussion 9

## Supernovae: one millennium after SN 1006

P. Frank Winkler<sup>1</sup> and Wolfgang Hillebrandt<sup>2</sup> (eds.)

<sup>1</sup>Department of Physics, Middlebury College, Middlebury, VT 05753, USA  
email: winkler@middlebury.edu

<sup>2</sup>Max-Planck-Institut für Astrophysik, Karl-Schwarzschild-Strasse 1, D-85748 Garching,  
Germany  
email: wfh@mpa-garching.mpg.de

### Preface

The year 2006 marks the 1000th anniversary of the supernova of 1006 C.E., the brightest supernova in all of recorded human history. This is also a time of great excitement in the supernova community: Observations from space observatories including *Hubble*, *Chandra*, *XMM-Newton*, and *Spitzer*, together with ones from powerful new ground-based telescopes and instruments, are revealing supernova remnants in the Galaxy and beyond in unprecedented detail. Fully three-dimensional computational codes and simulations running on powerful new machines are providing insight into the physics of supernovae freed from the simplifying assumptions that have restricted past understanding. Automated supernova searches are discovering hundreds of new supernovae every year, some at redshifts of 1 or beyond. And supernovae have revolutionized cosmology through the discovery of an accelerating universe, and they hold promise for deepening our understanding of the ‘dark energy’ that drives the acceleration.

Joint Discussion 09 on *Supernovae: one millennium after SN 1006*, brought together observers, theorists, and some historians – to celebrate the SN 1006 millennium by reviewing recent progress in understanding supernovae, their remnants, and their application to cosmology. In a stimulating day and a half there were 25 (mostly invited) oral papers, as well as some two dozen posters touching on many observational and theoretical aspects of supernova research. The oral papers focused primarily on Type Ia supernovae and their remnants – including observations of SN 1006 itself and its more recent cousins, models for SN Ia progenitors, explosion mechanisms, and how they interact with the interstellar and circumstellar medium on the way to becoming remnants, through the application of SN Ia’s to cosmology.

In addition to stimulating discussions among participants both inside and outside the conference hall, there was culinary stimulation in the form of a delicious 1000th birthday cake for SN 1006 (Figure 1).

The organizers thank all who presented oral or poster papers at JD09 for their contributions. We hope that they as well as the many other astronomers who took part in the IAU XXVI General Assembly, and readers of this volume, will glimpse the excitement that attends supernova research today. We also wish to thank all the members of the local organizing committee for all that they did to make IAU XXVI General Assembly and JD09 a success.



**Figure 1.** Participants of JD09 eagerly awaiting the cutting of a Birthday Cake to celebrate the Millennium of SN 1006.

### Scientific Organizing Committee

Gloria Dubner (Argentina), Claes Fransson (Sverige), Wolfgang Hillebrandt (Germany, co-chair), Katsuji Koyama (Japan), Ken'ichi Nomoto (Japan), Robert Petre (USA), Pilar Ruiz-Lapuente (Spain), Brian P. Schmidt (Australia, co-chair), Virginia L. Trimble (USA), J. Graig Wheeler (USA), and P. Frank Winkler (USA, co-chair).

*P. Frank Winkler, Wolfgang Hillebrandt, co-chairs SOC,  
Middlebury, Vermont, USA, and Garching, Germany, December 2006*