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Supernovae as Distance Indicators

Proceedings of a Workshop
Held at the Harvard-Smithsonian Center for Astrophysics
September 27–28, 1984

Edited by Norbert Bartel



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Preface

This volume contains the proceedings of the workshop "Supernovae as Distance Indicators," held at the Harvard-Smithsonian Center for Astrophysics September 27-28, 1984.

The idea to organize a workshop on this subject came in the spring of 1984 when our progress in angularly resolving an expanding radio supernova with VLBI techniques shed light on the exciting prospect of determining extragalactic distances. The purpose of the workshop was to compare this new method of using supernovae as distance indicators with existing optical methods, namely, the method that is based on the use of Type I supernovae as standard candles, the Baade-Wesselink method for Type I and Type II supernovae, and the ^{56}Ni -radioactivity method for Type I supernovae. Further goals of the workshop were to describe and compare the uncertainties inherent to each of these methods and to discuss the potential that improved theoretical models of supernovae, supernova atmospheres, and young supernova remnants may have for reducing these uncertainties of extragalactic distance determinations.

Allan Sandage opened the meeting with a comparative evaluation of traditional methods of determining distances to remote galaxies. The body of the meeting was devoted to a session on the observational results on supernovae and supernova remnants, followed by sessions on how extragalactic distances can be determined by radio and optical methods.

Although we asked the participants to submit for publication questions and answers posed after each talk, we soon noticed that the informal nature of the meeting and the liveliness of the discussion made this impractical. The few contributions we received were not representative. Therefore, we did not include any discussion sections here.

We originally conceived the workshop as a "Neighborhood" Meeting but very soon realized the need to expand. The workshop was attended by about 20 participants from the CfA and by 25 participants from 20 other institutions.

The meeting was sponsored by the Smithsonian Astrophysical Observatory. We are grateful to B. Bonometti, J. Davis, and C. Gwinn for their help during the workshop and to C. Barrett and K. Brown for their support in organizing the workshop and editing the proceedings.

Norbert Bartel, James Moran
Organizing Committee

January 1985

TABLE OF CONTENTS

1. Review of Extragalactic Distance Indicators

Current Problems of Determining Distances to Galaxies

A. SANDAGE and G. A. TAMMANN 1

2. Observations of Supernovae and Supernova Remnants

Multifrequency Observations of Recent Supernovae

N. PANAGIA 14

Supernova Observations at McDonald Observatory

J. C. WHEELER 34

Spectropolarimetry of Supernovae

M. L. McCALL 48

Radio Emission from a Type I Supernova

R. A. SRAMEK 62

Radio Emission from Type II Supernovae

K. W. WEILER 65

Radio Observations of Historical, Extragalactic Supernovae

J. J. COWAN and D. BRANCH 75

Discovery of an Entire Population of Radio Supernova Candidates
in the Nucleus of Messier 82

P. P. KRONBERG 88

Detecting Supernova Remnants in External Galaxies

J. R. DICKEL and S. D'ODORICO 100

3. Radio Supernovae and Inference of Extragalactic Distances

Angular Diameter Determinations of Radio Supernovae and the Distance Scale N. BARTEL	107
Supernova Interaction with a Circumstellar Wind and the Distance to SN 1979c R. A. CHEVALIER and C. FRANSSON	123
Model and Geometry Dependence of Radio Distance Determinations of Extragalactic Supernovae A. P. MARSCHER	130

4. Optical Supernovae and Inference of Extragalactic Distances

Optical Supernovae and the Hubble Constant D. BRANCH	138
Type I Supernovae as Standard Candles R. CADONAU, A. SANDAGE, and G. A. TAMMANN	151
Radius and Absolute Magnitude of a Cepheid Variable A. J. WESSELINK	166
Astrophysical Distances to Type II Supernovae R. P. KIRSHNER	171
Model Atmospheres for Type I Supernovae R. HARKNESS	183
Accuracy of Model Parameters from Spectroscopic Fine Analyses of Supernovae K. HEMPE	192
Physical Models for Type I Supernovae and the Distance Scale J. C. WHEELER and P. G. SUTHERLAND	200
A Preliminary Discussion of Bose-Einstein Diffusion in Supernovae A. J. FU and W. D. ARNETT	209

After-Dinner Talk

Supernovae Up Close B. G. MARSDEN	222
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