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Preface

5th Conference on Astronomy with Radioactivities (AwR V)

Branches of astronomy are often defined by an observational band or technique, such as “optical” or “radio” or “high-energy” astronomy. This emphasizes an experimental approach to astrophysical problems, as opposed to a theoretical point of view. A complementing view is taken by this conference series: The focus on astrophysical problems of interest is taken from the formation of fresh nuclei in the universe.

This new-isotope formation occurs inside stars in either static or explosive burning, through nuclear fusion reactions, but also in interstellar space via high-energy particle interactions. Theories for cosmic nucleosynthesis have been developed following the pioneering insights by Burbidge, Burbidge, Fowler and Hoyle in 1957. A bridge between theories of cosmic nucleosynthesis and the observation of some of its products is possible with isotopes whose decay is detectable with X-ray or gamma-ray experiments in space, as well as ground-based measurements of isotopes in meteorites. This is the idea behind the theme of the conference series “Astronomy with Radioactivities”. This is the idea behind the theme of the conference series “Astronomy with Radioactivities”. In September 2005 at Clemson University the 5th AwR conference was combined with the annual Clemson–Washington University “Workshop on Isotopic Anomalies in Meteorites”, which since 1990 has brought together astrophysicists and meteoriticists to discuss the implications of these anomalies in meteorites and presolar grains. The proceedings of this meeting is presented in this volume. In addition to discussing recent advances, and debating future directions, we also had the pleasure to celebrate the 70th Birthday of one of the founders of both conference series, Donald D. Clayton.

The Researchers from traditional observational fields (in gamma-ray, X-ray, optical, infrared, and radio astronomy), as well as experts on cosmic-ray physics, meteoritics, stellar evolution, nova and supernova models, galactic structure and chemical evolution, came together for inter-disciplinary discussions around the common theme of *observing the formation of cosmic nuclei*. The conference was held at Clemson University’s Madren Center. Nearly 100 participants from more than a dozen countries presented 62 talks and a dozen posters, and enjoyed lively discussions in the relaxed environment of the center and the nearby lakes.

This specific field is worthy of the significant, and sustained research effort exhibited during this conference. We thank the participants for outstanding contributions, and look forward to meeting again in the near future to discuss new ideas and data from existing and next-generation telescopes, spectrometers, accelerators, and space-based detectors. More information on this workshop series can be found at www.gamma.mpe-garching.mpg.de/mpeteam/workshop/radioact.htm.

We are grateful to the Curry Foundation, the Joint Institute for Nuclear Astrophysics of the NSF, and Clemson’s Department of Physics and Astronomy for financial support, and to the staff of the Madren Conference Center for providing facilities and hospitality. We are also grateful to Ann F. Vaughn for coordinating the logistics of AwR V.

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