

Foreword

The *Nuclear Physics in Astrophysics II Conference* was held on May 16-20, 2005, in Debrecen, Hungary, hosted by ATOMKI (the Institute of Nuclear Research of the Hungarian Academy of Sciences).

The first *Nuclear Physics in Astrophysics Conference* was the *17th Nuclear Physics Divisional Conference* of the European Physical Society in 2002. Based on the success of the event, the Board of the Nuclear Physics Division decided to launch a series of conferences called *Nuclear Physics in Astrophysics (NPA)* devoted to the interplay between nuclear physics and astrophysics. *NPA-II*, “a Europhysics Conference” was organized under the auspices of the Nuclear Physics Board of the European Physical Society as its 20th Divisional Conference.

Nuclear physics and astrophysics have been strongly linked ever since it was realised that nuclear reactions were a key source of energy in stars. There has been a recent resurgence of activity in the field because of technological developments which have raised the possibility of measuring rates for nuclear processes which are very relevant to the physics of stars and which were previously inaccessible to laboratory measurement. It is fair to say that the issues addressed in nuclear astrophysics are some of the most important and fascinating in the whole of science. Many of them were discussed at this Conference.

The program consisted of review talks on recent developments in nuclear astrophysics and selected oral and poster contributions on experimental and theoretical results in the following fields:

- Big-Bang Nucleosynthesis
- Neutrino Physics
- Stellar (non-explosive) Nucleosynthesis
- Explosive Nucleosynthesis
- Cross-Section Measurements and Nuclear Data for Astrophysics
- Nuclear Structure Far from Stability
- Rare-Ion-Beam Facilities and Experiments
- Perspectives of Nuclear Physics and Astrophysics

The Editor-in-Chief and the publishers kindly agreed to publish a Topical Volume in EPJAdirect consisting of original and refereed papers from the conference as electronic-only supplement to The European Physical Journal A.

Independently, this Topical Volume will also be made available in book form for the conference participants and the library book market. The electronic version of this Topical Volume in EPJAdirect will be open access to everyone worldwide without a time limit. Both oral contributions and posters were peer reviewed by a dedicated committee of referees. This rigorous refereeing process assured a high scientific standard for accepted papers.

Nuclear astrophysics is an outstanding example of state-of-the-art interdisciplinary research. The origin of elements studied by geologists is explored by astrophysicists using reactions measured by the nuclear-physics community. Low-energy reactions also have an impact on solid-state physics. The *Nuclear Physics in Astrophysics II Conference* provided a good opportunity to discuss the progress in various topics of nuclear astrophysics and stimulated new collaborations in the field.

We would like to thank all of those who attended the conference and the International Advisory and Organizing Committees for their time and effort.

The conference would not have been a success without the financial help of the host institute ATOMKI, the Hungarian Academy of Sciences and the European Physical Society.

At its meeting in Albena, Bulgaria on 1st October, 2005, the Nuclear Physics Board of EPS recommended that the next *Nuclear Physics in Astrophysics Conference (NPA-III)* be held in Dresden, Germany in the spring of 2007.

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