



PREFACE

Proceedings of the 9th International Conference on Nuclear Physics at Storage Rings STORI'14

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Preface

Proceedings of the 9th International Conference on Nuclear Physics at Storage Rings STORI'14

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The 9th International Conference on Nuclear Physics at Storage Rings STORI'14 was held from September 29 to October 3, 2014 at Sankt Goar, Germany, a picturesque little town, located at the Rhine river close to the famous 'Loreley' within the UNESCO world heritage 'Mittleres Rheintal'. It was hosted by the GSI Helmholtzzentrum für Schwerionenforschung, Darmstadt, Germany. The conference was the 9th of its kind, and followed the previous conferences held at Lund, St. Petersburg, Bernkastel-Kues, Bloomington, Uppsala, Jülich, Lanzhou and Frascati.

The purpose of the conference was to provide a forum for the international research community, including accelerator experts as well as experimentalists working at storage rings and theoreticians, for the presentation and discussion of all aspects of nuclear physics at storage rings and related fields. In this spirit the topics covered:

- a large variety of physics experiments concerning not only nuclear physics, but also atomic physics, hadron physics, fundamental symmetries and interactions, subnucleonic degrees of freedom, and accelerator physics,
- technologies for providing cooled, stored stable and radioactive beams and their diagnostics, and
- instrumentation for various in-ring experiments.

Special emphasis was also put on perspectives at future facilities, presently under construction or planned. In addition, some related fields, such as physics and techniques of ion traps and electrostatic rings were also featured.

In spite of the variety of the physics questions addressed, which often are quite diverse, it was realized that the common basis is the research instrument used: all experiments benefit from the unrivalled potential provided by using stored and cooled beams. In this spirit the conference offered the opportunity for a lively discussion of common (not only technical) problems, and for exchanging new and challenging ideas.

The conference was received with significant interest amongst the community with an all-time record of 127 participants from 15 countries all over the world. The scientific program consisted of 68 plenary oral presentations, including 9 invited review talks, 26 invited topical talks, and 33 contributed talks, as well as 45 poster presentations.

We are grateful to the members of the International Advisory Committee and of the Local Program Committee who actively contributed to accomplish a well-balanced scientific program with, to our great pleasure, lively participation from a considerable number of young students and researchers. The conference speakers and also the colleagues who presented posters gave an impressive performance. Thank you once more!

The conference opened with two review talks, one by I Meshkov, covering various aspects of storage ring operation and beam cooling, and the other by

K Langanke, who gave an impressive overview on modern quests in nuclear astrophysics from the theoretical point of view. The field of physics experiments at storage rings was covered by two review talks given by P Woods on nuclear structure and nuclear astrophysics experiments, and by A Khoukaz on hadron physics experiments. All aspects of atomic physics with highly charged heavy ions at storage rings were covered by a review presented by A Surzhykov, while review talks by K Blaum and H Schmidt covered the fields of ion traps, and electrostatic storage rings, respectively. The series of review talks was continued by impressive presentations on fundamental symmetries and interactions by K Jungmann, and on future radioactive beam facilities by S Gales. The conference program was completed by a number of topical invited talks and contributed presentations, covering all aspects and topics of the conference discussed above. In particular, the major new facilities offering great perspectives for the field were also discussed. These are the HIAF project in China, the NICA project in Russia, the RIKEN Rare-RI Ring in Japan, the TSR@ISOLDE project at CERN and the international FAIR project in Germany.

One evening was devoted to the well-attended poster session, which opened the opportunity to discuss a good number of interesting topics in a relaxed atmosphere. In the closing session a summary of the conference was presented. For this purpose we had invited three young scientists who actively participated in the conference to present their point of view of the conference week, instead of inviting an experienced senior scientist for this duty. S Kraft-Bermuth, D Doherty and S Litvinov presented their impressions of the conference covering the three fields of atomic physics, nuclear physics, and accelerator physics, and there was common agreement, that this ‘experiment’ was a full success.

Throughout the conference, active discussions during the sessions were continued during coffee and lunch breaks for which sunny weather and the garden of the conference location Schloss Rheinfels provided a spectacular ambience. The participants also enjoyed the conference excursion which introduced them to the UNESCO world heritage ‘Mittleres Rheintal’ and its world famous collection of castles on a boat trip along the Rhine river from Sankt Goar to Rüdesheim. After a short hike at Rüdesheim with spectacular views of the Rhine valley, the boat trip was continued with a stop at Bacharach for a wine tasting in the yards of a winery.

During the conference dinner held at the Rheinfels Castle, awards for the three best poster presentations were provided. The winners were M Dolinska, M von Schmid and F Suzuki. The awards were sponsored by the representatives of the journal *Physica Scripta*.

The organization of the following proceedings reflects the concept and the structure of the conference. The written versions of the presented talks and posters were grouped according to the main subjects of the conference. Three sections about physics in the fields of nuclear structure, astrophysics and reactions, hadron physics and atomic physics are followed by sections about fundamental symmetries and interactions, accelerator physics and techniques, electrostatic rings and traps, future facilities and a summary.

The present proceedings contain the majority of the lectures presented and also most of the poster contributions. We appreciate very much the work of the referees who had the laborious task of selecting and judging the papers which were finally accepted for publication, and, likewise, the cooperation of all authors in preparing their manuscripts. We also express our gratitude to those responsible at *Physica Scripta* for undertaking the publication of the proceedings of this conference.

Finally, we would like to thank all members of the Local Organizing Committee who mastered all of the sometimes smaller, sometimes bigger problems that arose during the preparation and the conference itself. In particular, we are very

obliged to our conference secretaries Tanja Litvinova and Nuray Azevedo Simoes, who managed, always smiling, to solve and clear-up every difficult task.

A special ‘thank you’ is due to the staff of the conference location Schloss Rheinfels for their hospitality and support, and last but not least to the sponsors of STORI’14. Without their generous financial support it would not have been possible to organize the conference in this way.

On a meeting of the International Advisory Committee it was decided that the next STORI conference STORI’17 will be organized by the RIKEN Nishina Center, Tokio, and will be held at Kazawa in Japan. Having in mind that within the next three years a number of new storage ring facilities, in particular the one at RIKEN, will come into operation, providing a lot of interesting experimental opportunities for our community, we are looking forward to an interesting conference program for the next STORI conference in 2017.