Foreword

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This proceedings volume combines the contributions of two international conferences, EXA08 (Exotic Atoms and Related Topics) and LEAP08 (Low Energy Antiproton Physics), held between September 15th and 19th, 2008 in Vienna, Austria. The EXA conference series was introduced in 2002, when the first very successful international workshop was hosted in Vienna by the Institute for Medium Energy Physics (IMEP), the predecessor of the Stefan Meyer Institute of the Austrian Academy of Sciences (SMI). The next event, EXA05 in 2005, was then organized by SMI as an international conference with substantially increased number of attendees. In 2008 the EXA08 conference was conducted in overlap with LEAP08, the ninth conference in a series starting 1990 in Stockholm, with recent meetings taking place in Yokohama (2003) and Bonn (2005). The two conferences were structured in 22 sessions (18 sessions with plenary talks and 4 parallel sessions) and one poster session, and attracted a total of about 180 scientists from Europe, Japan, China, Russia, USA, and Canada.

The EXA conference series focusses on the physics addressed with precision spectroscopy of exotic atoms, like tests of CPT symmetry and bound-state QED for atoms with the exotic particle in highly excited states. These measurements produce the highest precision attainable in certain areas. Transitions to low-lying atomic states in hadronic atoms offer the unique possibility to perform scattering experiments at threshold, providing important information to the study of QCD in the non-perturbative regime. Here the kaon-nucleon interaction is the current hot topic, where many new theoretical and experimental results were presented. At LEAP all aspects of antiproton physics are broadly discussed, from low-energy atomic physics to hadron physics, where antiprotons offer unique possibilities to produce mesons of all quantum numbers for precision spectroscopy of their masses and widths. Upcoming facilities were also presented, with FAIR, the planned Facility

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for Antiproton and Ion Research at Darmstadt being one of the most promising ones for this field.

The reason for organizing EXA08 and LEAP08 jointly originates from the fact that there is a significant overlap in the physics topics mainly related to precision spectroscopy of antiprotonic atoms and the low-energy QCD studies in antiprotonic, kaonic and pionic light systems. In spite of the common science topics, the audience of both conferences so far did not show much overlap. This joint organization was thus an experiment, which was generally well received.

Sessions were held on Exotic Atoms, Kaon-Nucleon Interaction, Exotic Decays, Fundamental Symmetries and Interactions, Antiprotonic Helium, Antiproton Collisions, Particle Trapping, Facilities and Instrumentations, and Hadron and Nuclear Physics with Antiprotons, which also make up the sections of these Proceedings. The scientific part was complemented by an excursion to the Wachau region of the Danube river and a conference dinner hosted by the Mayor of Vienna in the splendid City Hall. During the dinner, an evening talk about Stefan Meyer—an Austrian pioneer of research on radioactivity, after whom the Stefan Meyer Institute is named—was given by W. Reiter. He provided an interesting insight in the history of nuclear science in Austria.

We organizers are very grateful to the members of the International Advisory Committees of EXA08: T. Bressani (Torino), G. Ecker (Vienna), T. Ericson (Geneva), A. Gal (Jerusalem), C. Guaraldo (Frascati), R.S. Hayano (Tokyo), P. Indelicato (Paris), H. Koch (Bochum), J. Marton (Vienna), K. Nagamine (Riverside), S. Nagamiya (Tokai), S. Paul (Munich), H. Rauch (Vienna), H. Stöcker (Darmstadt), E. Widmann (Vienna), T. Yamazaki (Tokyo), and J. Zmeskal (Vienna); and LEAP08: M. Alberg (Seattle), J. Ellis (Geneva), G. Gabrielse (Harvard), T.W. Hänsch (Munich), R.S. Hayano (Tokyo), P. Indelicato (Paris), J. Jastrzębski (Warsaw), T. Johansson (Uppsala), P. Kienle (Vienna), K. Kilian (Jülich), H. Koch (Bochum), F. Maas (Mainz), W. Oelert (Jülich), K. Peters (Darmstadt), J. Ritman (Jülich), T. Stöhlker (Darmstadt), J. Ullrich (Heidelberg), E. Widmann (Vienna), U. Wiedner (Bochum), and Y. Yamazaki (Tokyo) for their support in getting together an exciting programme. We also want to thank the Austrian Academy of Sciences for their support and for hosting the meeting in their headquarters, and the Secretary, Prof. Stingl, for his opening address. Support by the Mayor of Vienna, Hayano group (University of Tokyo) and the EU FP6 project Hadron Physics is gratefully acknowledged. Most of the work was done by the two scientific secretaries, B. Juhász and K. Suzuki, and the local organizing team (F. Boes, R. Gsell, D. Stückler) and many other students.

The next conference of the EXA series will be hosted again by the Stefan Meyer Institute and will take place in Vienna. The international advisory committee of LEAP08 decided that the follow-up LEAP conference will take place in Vancouver, Canada, organized by Makoto C. Fujiwara (TRIUMF) and Mary Alberg (Seattle).