Foreword

The 11th International Conference on Meson-Nucleon Physics and the Structure of the Nucleon - MENU 2007 - was organized by the Institut für Kernphysik, Forschungszentrum Jülich, Jülich, Germany. It took place from September 10-14, 2007, when approximately 350 participants came together. Conferences in this series take place now in a three year interval. Previous conferences were held in Karlsruhe, Germany (1983), Los ALamos, USA (1987), Gatchina (Leningrad), Russia (1989), Bad Honnef, Germany (1991), Boulder, USA (1993), Blaubeuren, Germany (1995), Vancouver, Canada (1997), Zuoz, Switzerland (1999), Washington, DC, USA (2001), and Beijing, China (2004).

The aim of the Conference was to bring together the experts of both meson physics and baryon spectroscopy because of the great overlap of the physics questions in both fields. The progress in symmetry studies and its possible relevance for other fields was discussed. A critical review of the methods for resonance extractions was done and the role of final state interactions in modifying resonance properties has been addressed. Important questions for the future development of the field with regard to common aspects of the charmed quark sector and the light quark sector were worked out.

The aim of the Conference is to bring together the experts of both meson physics and baryon spectroscopy because of the great overlap of the physics questions in both fields. The progress in symmetry studies and its possible relevance for other fields will be discussed. A critical review of the methods for resonance extractions will be done and the role of final state interactions in modifying resonance properties has to be addressed. An important question for the future development of the field is to work out common aspects of the charmed quark sector and the light quark sector. A few overview talks which focus on the basic open questions of the field and possible applications in neighboring fields will be included.

Hadron physics investigates an open frontier of the Standard Model: the strong interaction for large gauge couplings. Experimentally, there two major strategies currently pursued:

- Precision experiments study symmetries and their violations with the aim to extract fundamental quantities of Quantum Chromodynamics, such as the quark masses,

- Studies of the excited states and their decays try to establish the ordering principles of the hadronic spectra in order to shed light on the problem of the confinement of the quarks.

On the theoretical side, the scientific paradigm has shifted within the last two decades to effective field theories. The basic idea is to characterize a physical system by its energy or length scales. Within a given energy range, the important symmetries have to be identified and only the relevant degrees of freedom have to be treated explicitly, while physics at higher energy scales can be summarized by a finite set of low-energy constants. The number of those constants is limited by a systematic counting scheme and depends on the precision one aims for. The effective field theory of Quantum Chromodynamics is called Chiral Perturbation Theory. By now, it is a standard tool for hadron physics in the threshold region. For larger energies, chiral perturbation theory has to be unitarized. Nuclear effective field theory is an extension of chiral perturbation theory based on Weinberg's suggestions. In this field, there has been considerable progress. The two-nucleon potential obtained within nuclear effective field theory has been developed to a precision which is as high as the one of the best phenomenological potentials. Moreover, it allows a systematic inclusion of few-body forces. The few-body forces derived in effective field theory are closely linked to experimental data, such as pion-nucleon scattering and few-body reactions with polarized partners. Since the isospin dependence of those three-body interactions is determined mainly by data, one gains predictive power for theoretical studies of nuclear matter and eventually neutron-rich finite nuclei. These new developments start to bring together previously separated communities which makes them an interesting topic for the MENU conference. Presently, there is a wealth of new data for physics involving the strange quarks. Polarized electron scattering finds that the strangeness content of the nucleon is small. The recent experimental results for exotic atoms obtained by DEAR and at KEK are of high precision and have significantly increased the data base for antikaon-nucleon scattering. These new results start to impact on the discussion concerning the structure of the Lambda(1405) which is notoriously difficult to obtain in quark models. Kaon production both with the electromagnetic probe and hadronic probes has been investigated and evidence for some new resonances has been claimed.

We hope that the programm achieved these goals. The next conference of this series will be held 2010 when Jefferson Lab. is the host. We wish it great success with exciting new results.

The proceedings consist of two volumes. In Volume I all submitted invited talks are compiled while Volume II contains all submitted contributions, presented orally or as posters.

Siegfried Krewald and Hartmut Machner
Chairpersons, Organizing Committee

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Siegfried Krewald and Hartmut Machner
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