

Foreword

When the *18th International Conference on Nucleus-Nucleus Collisions (Quark Matter 2005)* was set up to take place August 4–9 in Budapest, Hungary, its International and Regional Advisory Committee encouraged the organization of workshops and symposia in close temporal and geographical proximity on related topics.

In this context, Christian Fabjan (CERN and TU Vienna) and Anton Rebhan (TU Vienna) together with a quickly growing International Advisory Committee chaired by Barbara Jacak from the State University of New York at Stony Brook proposed a special workshop on the issue of quark-gluon-plasma (QGP) thermalization which recently had become a (literally) hot topic. The aim of this workshop was to bring together theoretical physicists and heavy-ion experimental physicists to review and discuss the recent experimental evidence for the apparent fast thermalization of the quark-gluon plasma as produced at ultrarelativistic heavy-ion collisions and the difficulties and possibilities of a theoretical understanding, in greater depth than feasible at the Budapest Conference which was devoted to quark matter research in general.

Despite the fact that the *Quark Matter* conference with its many parallel and plenary sessions as always turned out to be an intense and exhausting event, the subsequent *QGP Thermalization Workshop* was accepted by its numerous participants as a welcome opportunity for free and detailed discussions. There have even been complaints that the entire program of talks was of such high interest that it was impossible to skip anything and take advantage of the fact that the workshop was located at a building of the Technical University of Vienna, right in the center of the city of Vienna and only a few hundred meters from the Vienna State Opera and other touristic places.

The program of the *QGP Thermalization Workshop* began with review talks on the experimental results from the first five years of RHIC data taking with emphasis on evidence for thermalization in central gold-gold collisions and on the status of hydrodynamical simulations that have led to the postulation of a strongly interacting quark-gluon plasma (sQGP) with apparent thermalization within less than 1 fm/c. The central theme of the workshop was the discussion of new ideas to understand the thermalization issue from fundamental physics, ranging from strongly coupled supersymmetric Yang-Mills theories as a model for the sQGP to perturbative QCD and effects of non-Abelian plasma instabilities in a weakly coupled quark-gluon plasma. All stages of the evolution of the RHIC fireball were covered and discussed, from the so-called melting color glass condensate immediately after the collision up to freeze-out and hadronization.

This *Special Issue* collects the contributions to the *QGP Thermalization Workshop*, which were subjected to anonymous peer review to assure the high scientific standard required for publications in *The European Physical Journal*. We would like to thank all those who attended this workshop and have taken the effort to contribute to these proceedings as well as the International Advisory Committee for their help in selecting an exceptionally good program.

Finally, we would like to thank the Atominstitut der Österreichischen Universitäten and the Institute for Theoretical Physics of the Technical University Vienna for their financial support and last but not least Mrs. Mössmer for her wonderful organizational work.

Anton Rebhan (on behalf of the Local Organizing Committee)
Tamás S. Bíró (on behalf of the *EPJ A* Editorial Board)