

**Short report about the workshop:**  
**Nonequilibrium Nanostructures**  
**(01.12.08-06.12.08 at MPIPKS Dresden)**

As a result of the cooperative effort of the *Forschungszentrum Dresden-Rossendorf*, the *International Center for Condensed Matter Physics* in Brasilia (ICCMP), and the *Max-Planck-Institut für Physik komplexer Systeme* in Dresden (MPIPKS), the international workshop Nonequilibrium Nanostructures (NONNA 08) took place at the MPIPKS from 01.12.08 to 06.12.08. The workshop was supported by the Deutsche Forschungsgemeinschaft and the Government of Saxony. It was attended by 92 scientists from 24 countries and 5 continents. This high level of international interest in the subject pleasantly exceeded the expectations of the organizers.

The highly ranked participating scientists assembled for the 6 days of the workshop and exchanged exciting new experimental and theoretical results. The extraordinary density of the program, featuring 58 talks in 6 days, was a stimulating experience. Every session of 3 talks was followed by a lively discussion break. All talks were characterized by an extremely high quality of presentation, and often unpublished results were communicated. In this respect it was of great advantage to allow 30 minutes to every speaker. Leading scientists were able to provide an excellent compact overview of their current work, while younger scientist had the opportunity to present their results to an international audience with enough detail. The daily poster sessions, the friendly atmosphere and the coffee and lunch breaks all stimulated discussions which brought the participants in contact with topics and subjects of research outside their own. An immediate result of the workshop is the agreement to apply for a European network in 2009. Also, an international working group is currently being established with the same name at the ICCMP in Brasilia ([www.iccmp.br/ne](http://www.iccmp.br/ne)) to take up the momentum of the workshop and develop new collaborations among the participants.

Major experimental results and developments were presented in the field of nanostructures as well as in the field of short time scale dynamics. This demonstrates the broad variety of main stream experimental research areas discussed at the workshop.

On the theoretical side, the current status of many-body quantum theory of finite systems in nonequilibrium was discussed. Different approaches were presented to include transient effects on short time scales as well as correlations in the description. It became clear that our theoretical understanding is currently behind the experimental knowledge of such systems. This motivates renewed efforts to attack the open questions of quantum transport in finite systems. During the next years, groundbreaking developments in the quantum kinetic theory of finite systems are expected.

In conclusion, the workshop successfully unified the pictures of quantum theory with theories of systems out of equilibrium. By a remarkable mixture of talks from international outstanding experimentalists and theorists as well as young postdocs, it was possible to achieve a compact overview of the current status of research. According to a common reaction of all participants, the NONNA 08 workshop was extraordinarily fruitful and stimulating for the activities of the different groups.

It is a pleasure to thank the Deutsche Forschungsgemeinschaft and the Government of Saxony for their generous support. With no impact on the scientific quality of the workshop it was possible to use only 80% of the available funds. We also owe a debt of gratitude to Claudia Poenisch for the extremely professional and effective organization of the workshop.