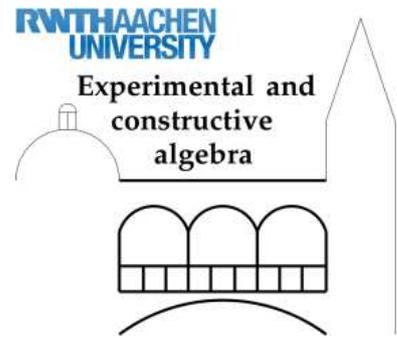


Graduiertenkolleg

# Experimentelle und konstruktive Algebra



## Vortrag

Montag, 21. November 2011, 11:45 Uhr, Hörsaal Fo 6

**VLADYSLAV USENKO** (Palacký University, Olomouc, Tschechische Republik):

***Continuous-variable quantum key distribution: security from quantum noise and classical information***

Information security is a need for humanity ever since its earliest times. Centuries of cryptographic research yielded the single encryption scheme, which was mathematically proven secure. However, it requires the unconditionally secure key distribution, unrealizable by any classical communication system. Thus the quantum cryptography emerged to utilize the fundamental principles of quantum theory for the purpose of secure cryptographic key distribution. Being the joint effort of quantum physics and information science, quantum cryptography had grown mature and even commercialized over the last two decades, but still progresses to increase its applicability as well as remains the stimulating direction of fundamental research. One of the recent developments in the field is concerned with the application of the multi-particle continuous-variable quantum states instead of the single-particle ones. We will review the quantum cryptography with the emphasis on continuous-variable protocols, discuss the role of noise and non-classicality in the security of the schemes and mention some of the challenges yet standing before the physicists and mathematicians in the fascinating field of secure quantum communications.

Wir laden alle Interessierten herzlich ein.