



TECHNISCHE
UNIVERSITÄT
WIEN

Vienna University of Technology

INSTITUT FÜR
ANGEWANDTE PHYSIK
Institute of Applied Physics
vormals/formerly
Institut für Allgemeine Physik



Wiedner Hauptstraße 8-10/E134, 1040 Wien/Vienna, Austria – Tel: +43 1 58801 13401 / Fax: +43 1 58801 13499 – E-mail: office@iap.tuwien.ac.at / <http://www.iap.tuwien.ac.at>

IAP-SEMINAR

EINLADUNG

Termin: **Dienstag, 4.12.2012 um 16:00 Uhr**
Ort: **Technische Universität Wien,
Institut für Angewandte Physik,
Seminarraum 134A, Turm B (gelbe Leitfarbe), 5. OG
1040 Wien, Wiedner Hauptstraße 8-10**

Vortragender: **Dipl.-Ing. Robert Achleitner**
TU Wien, IAP

Thema: **Quantum Monte Carlo-Stochastic Series Expansion; from coding to
the simulation of NMR spectra**

Kurzfassung

SrCu_2O_3 is a spin-1/2 Heisenberg spin-ladder compound that has been studied intensely both experimentally and theoretically. However, the low temperature broadening of the NMR spectrum caused by a small impurity concentrations ($x < 0.005$) could not be explained satisfactorily.

During my talk I will describe how such a system can be modeled and simulated using "Quantum Monte Carlo" (QMC) in the framework of the "Stochastic Series Expansion" (SSE). A brief introduction about the Monte Carlo Method in general will provide a basic understanding of this powerful tool. After discussing the stochastic series expansion the algorithm applied to the spin-1/2 Heisenberg model will be presented. In the last part of the talk I will show results obtained with our QMC-SSE code as well as a semi empirical model obtained from these results.

*Alle interessierten Kolleginnen und Kollegen sind zu diesem Seminar
(45 min mit anschließender gemeinsamer Diskussion) herzlich eingeladen.*

*P. Mohn e.h.
(Seminar-Chairperson)*

*H. Störi e.h.
(LVA-Leiter)*