

Einladung zur öffentlichen Defensio von

Mag. Johanna MICHOR

Thema der Dissertation:

**Scattering Theory for Jacobi Operators and
Applications to Completely Integrable Systems**

Abstract:

In this thesis we develop direct and inverse scattering theory for Jacobi operators which are short range perturbations of quasi-periodic finite-gap operators. We show existence of transformation operators, investigate their properties, derive the corresponding Gel'fand-Levitan-Marchenko equation, and find minimal scattering data which determine the perturbed operator uniquely. Then we apply this knowledge to solve the associated initial value problem of the Toda hierarchy via the inverse scattering transform.

Prüfungssenat:

a. Prof. Dr. Gerald Teschl (Vorsitz)
(Fakultät für Mathematik, Universität Wien)

Prof. Dr. Iryna Egorova
(Institut für Low Temperature Physics, Kharkiv National University)

a. Prof. Dr. Maria Hoffmann-Ostenhof
(Fakultät für Mathematik, Universität Wien)

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Ort: Fakultät für Mathematik, Seminarraum D 1.03, Nordbergstrasse 15