



Spectral Theory and Dynamics of Quantum Systems

GRADUIERTENKOLLEG 1838

Stuttgart-Tübinger Doktorandenseminar

25. November 2016

Universität Tübingen, Auf der Morgenstelle 10

Raum Doktoranden-Seminar: N15

Raum Kolloquium: N14

Programm

14.00 – 14.25 **Julian Schmidt:** Particle Creation at a fixed Point Source

14.30 – 14.55 **Daniela Maier:** Dispersive estimates on quantum graphs

15.00 – 15.25 **Tim Tzaneteas:** Accuracy of the Time-Dependent Hartree–Fock
Approximation with Coloumb Interaction

Kaffeepause im Hankel-Raum

16.00 **Mathematisches Kolloquium**

ab 17.30 **Nachsitzung**

Mathematisches Kolloquium:

The Arrow of Time - Images of Irreversible Behavior

Prof. Jürg Fröhlich (ETH Zürich)

ABSTRACT: After a short introductory discussion of entropy, I present examples of irreversible phenomena that are reasonably well understood mathematically.

- I will start with an analysis of the Second Law of Thermodynamics from the point of view of non-equilibrium statistical mechanics.
- I will then describe results concerning a mathematical derivation of diffusive particle motion - "quantum Brownian motion" – from unitary quantum dynamics.
- An analysis of a Hamiltonian model of friction (caused by emission of Cerenkov radiation) will follow next.
- I will end up with some casual remarks on the fundamental irreversibility of evolution in quantum mechanics.