

## TEACHING EXPERIENCE

### SUPERVISED THESES

AT LMU MUNICH, 2013-2017

Master theses:

- ‘On the quantization of the Hall conductance for many-body interactions on a torus’
- ‘Extension problem related to the fractional Laplacian and application to a fractional Schrödinger equation’
- ‘Über scharfe Hardy-Ungleichungen’  
(Sharp Hardy inequalities)
- ‘On the area law for the entropy of entanglement for gapped systems’
- ‘Landauer-Büttiker formula: A geometric approach’

Bachelor theses:

- ‘The Stieltjes Transform in Random Matrix Theory’
- ‘Nonexistence of Large Nuclei in the Liquid Drop Model’
- ‘Isoperimetric Inequalities, Rearrangements and the Liquid Drop Model’
- ‘Around the Helffer-Sjöstrand formula’
- ‘On the Riesz-Markov theorem’
- ‘Das Spektrum des imaginären kubischen Oszillators’  
(The spectrum of the imaginary cubic oscillator)
- ‘Dynamischer Zerfall eines Weißen Zwerges in der Hartree- und der Hartree-Fock Theorie’  
(Dynamical collapse of white dwarfs in Hartree- and Hartree-Fock theory)

**COURSES & SEMINARS<sup>1</sup>**

## COURSES AT RESEARCH SCHOOLS

- ‘Many-Body Adiabatic Theory’  
Arizona School of Analysis and Mathematical Physics, Tucson, USA, 2018
- ‘Adiabatic Dynamics and Quasi-Adiabatic Flow within Gapped Phases’  
Master Class on Exotic Phases of Matter, Copenhagen, Denmark, 2017

## AT UBC VANCOUVER, 2017-

| Term      | Title                              | Undergrad/Grad | Remarks |
|-----------|------------------------------------|----------------|---------|
| Winter 18 | MATH 305: Applied Complex Analysis | U              |         |
| Fall 17   | MATH 223: Linear Algebra           | U              | Honours |

## AT LMU MUNICH, 2013-2017

| Term      | Title   | Bachelor/Master | Remarks |
|-----------|---|-----------------|---------|
| Summer 17 | Mathematical Statistical Physics I            | M               |         |
| Summer 17 | Distribution Theory                           | B/M             | Seminar |
| Winter 16 | Partial Differential Equations I              | B/M             |         |
| Winter 16 | Crash course: Functional Analysis             | M               | Block   |
| Winter 16 | Asymptotic Completeness [...] Quantum Systems | M               | Seminar |
| Summer 16 | Topologically Ordered Quantum Spin Systems    | M               |         |
| Summer 16 | Complex Analysis                              | B               |         |
| Winter 15 | Mathematical Quantum Mechanics I              | M               |         |
| Winter 15 | Matrix Analysis                               | B               | Seminar |
| Summer 15 | Mathematical Statistical Physics I            | M               |         |
| Summer 15 | Introduction to the Calculus of Variations    | B/M             | Seminar |
| Winter 14 | Partial Differential Equations I              | B/M             |         |
| Winter 14 | Explicit Methods for PDEs                     | M               | Seminar |
| Summer 14 | Mathematical Statistical Physics I            | M               |         |
| Summer 14 | Analytic Inequalities                         | M               | Seminar |
| Winter 13 | Mathematical Statistical Physics II           | M               |         |
| Winter 13 | Mathematics of the Quantum Hall Effect        | M               | Seminar |

## AT UC DAVIS, 2009-2013

| Term      | Title                                 | Bachelor/Master | Remarks |
|-----------|---------------------------------------|-----------------|---------|
| Spring 12 | Calculus, 16B                         | B               | Service |
| Fall 11   | Calculus, 16B                         | B               | Service |
| Fall 11   | Calculus, 16C                         | B               | Service |
| Fall 10   | Mathematical Classical Mechanics, 280 | M               |         |
| Fall 09   | Differential Equations, 22B           | B               | Service |

<sup>1</sup>A course run as a series of weekly presentations given by students

**TEACHING ASSISTANT**

AT ETH ZURICH, 2005-2009

In the mathematics department: Theoretical Physics (electrodynamics and special relativity)

In the physics department: Thermodynamics, Statistical Physics, General Relativity, Mechanics of Continuous Media, Quantum Field Theory

AT EPF LAUSANNE, 2003-2005

In the physics department: Quantum field theory, Probability & Statistics, Quantum Mechanics