

## 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 19	MATH 609E: Topics in Mathematical Physics	G	
Fall 18	MATH 100: Differential Calculus	U	
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