

# RNDr. David Schmoranzer, Ph.D.

## Curriculum Vitae

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### Personal details

Date, place of birth 28/11/1981, Šumperk, Czech Republic

Family status Married, two children (\*2011)

### Experience – Research

2011 – Present **Researcher/Lecturer**, *Charles University in Prague*, Czech Republic.

- Experimental cryogenic fluid dynamics, quantum turbulence – oscillatory flows
- Acoustic emission as a damping mechanism for mechanical resonators
- Thermal convection in cryogenic helium gas and liquid-vapour system
- Lectures on Fluid Dynamics and LabVIEW programming, Student Labs
- Supervising Bachelor and Master level students

2008 – 2011 **Junior Researcher**, *Charles University in Prague*, Czech Republic.

- Experiments on oscillatory flow due to quartz resonators
- Transition to turbulence in cryogenic helium fluids
- Teaching and supervision in Student Laboratories
- Consultant for Bachelor level students

### Education

2007 – 2011 **Ph.D. in Physics**, *Charles University in Prague*, Czech Republic,  
Specialized in Cryogenic Fluid Dynamics, Superfluidity, Quantum Turbulence.

Doctoral Thesis *Investigation of Cryogenic Helium Flows Using Mechanical Oscillators*  
Supervisor prof. RNDr. Ladislav Skrbek, DrSc. (skrbek@fzu.cz)

2002 – 2007 **Masters in Physics**, *Charles University in Prague*, Czech Republic,  
Specialized in Condensed Matter Physics, Low Temperatures, Superfluidity.

Masters Thesis *Vibrating Quartz Crystal as a Tool for Studying the Flow of Cryogenic Fluids*

1996 – 2002 **Gymnázium Olomouc-Hejčín**, *Bilingual grammar school - English section.*

### Internships

2009 and 2010 **Aalto University, Helsinki, Finland** (M. Krusius, V. B. Eltsov),  
Andreev reflection of thermal excitations on a lattice of quantized vortices in rotating superfluid  $^3\text{He-B}$  at sub-mK temperatures.

2011 **Institut Néel, CNRS Grenoble, France** (H. Godfrin, E. Collin),  
Fabrication of silicon and silicon nitride micromechanical resonators.

2012 **Lancaster University, UK** (S. N. Fisher, V. Tsepelin),  
Measurement of quantum turbulence in superfluid  $^4\text{He}$  at mK temperatures.

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## Grants and Projects

- Czech Science Foundation grants Took part in two projects awarded to Professor L. Skrbek “Selected problems of cryogenic fluid dynamics” and “Cryogenic helium as a working fluid for investigations of classical and quantum turbulence”; both rated as excellent.
- University grants Main investigator in “Study of quantum turbulence in superfluid helium using a vibrating quartz crystal” (3-year student project); small part in another similar project focused on NMR studies of diffusion dynamics.
- EuHIT project Partly responsible for the Czech Cryogenic Turbulence Facility offered to visitors in the framework of the EuHIT project supported by European Community Framework Programme 7. Took part in the project “Flow Instabilities in Superfluid Helium due to Oscillating Structures” submitted by V. Tsepelin (Lancaster University, United Kingdom).
- Mobility scheme (EU – 7AMB) Main investigator for the Czech side of the bilateral project “Quantum Turbulence: Experiments Using Visualization and Oscillating Structures” submitted in collaboration with Javier Luzuriaga (Centro Atómico, Bariloche, Argentina).
- Development grants Sole recipient of the successful development grant “LabVIEW programming classes at the Faculty of Mathematics and Physics”. Among other, this project led to the establishment of the “LabVIEW Academy” programme at the faculty, and brought support by the National Instruments company.

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## Skills and Languages

- Advanced Cryogenics & dilution refrigerators, design & construction of cryogenic setups/components, automation and process control, signal conditioning and analysis, LabVIEW programming
- Intermediate Vacuum systems, electronics & hardware, microcontrollers, programming (C++, Delphi), digital image processing
- Basic Flow visualization techniques, microfabrication and clean room processes (UV lithography, wet/plasma etching, vapour deposition, sputtering), technical design, web development (PHP, Javascript, MySQL)
- Languages English (fluent), French (intermediate), Czech (native speaker)

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## Certificates

- CAE Cambridge Certificate in Advanced English
- CLD Certified LabVIEW Developer

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## Employment history

- 2004 – 2008 **Translator**, ATP CZ, Panorama ILA, Volvox Globator publishing, Translation of legal & technical documents between Czech and English; Translation of “Before the Pharaohs” by Edward F. Malkowski into Czech.
- 2002 – 2008 **English teacher/Camp counsellor**, DDM Vila Doris, Seasonal employment.