

Rundong Zhou

Curriculum Vitae

Contact Information

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Research Interests

Fluid mechanics, Computational physics, Dynamical systems, Numerical and harmonic analysis, Spectral methods, Physical oceanography, and Atmospheric Sciences

EDUCATION

Candidate for **Master of Science**

Chalmers University of Technology

Joint with the Department of Physics, **University of Gothenburg**

Major in Complex Adaptive Systems

expected June 2024

Gothenburg, Sweden

cGPA 4.9/5

Erasmus+ Exchange Program

University of Twente

Placement in the Physics of Fluids group

Master's thesis supervisor: Dr. Chris Howland and Prof. Detlef Lohse

August 2023 - June 2024

Enschede, Netherlands

Bachelor of Applied Science in Engineering Science

University of Toronto

Major in Engineering Physics

Bachelor's thesis supervisor: Prof. Nicolas Grisouard

June 2021

Toronto, Canada

cGPA 3.28/4

Experiences & Summer Schools

Summer School in Mathematics

Université Grenoble Alpes, Institut Fourier

Topics in new trends in mathematical fluid mechanics

June 2023

Grenoble, France

LIST OF PUBLICATION

Zhou, R. and Grisouard, N. *Spectral solver for Cauchy problems in polar coordinates using discrete Hankel transforms*. Preprint, 2023. [arXiv:2210.09736](https://arxiv.org/abs/2210.09736)

HONOURS AND AWARDS

Avancez Scholarship

Chalmers University of Technology

75% tuition fee reduction, increased to 85% reduction in the second year for excellency.

2022 - 2024

Erasmus+ Exchange Travel Grant

Chalmers University of Technology & University of Twente

2023 - 2024

Undergraduate Research Fellowship

Canadian Institute for Theoretical Astrophysics

C\$ 2000 per month for four months.

2018

Dean's Honor List

University of Toronto

Pass with honor, >80% average.

2015 Fall, 2016 Fall

2020 Fall, 2021 Winter

RESEARCH EXPERIENCE

Master's Thesis

Department of Applied Physics, University of Twente

Supervisor: Dr. Chris Howland and Prof. Detlef Lohse

Swirling Kolmogorov flow, modelling ocean turbulent mixing driven by near-inertial waves.

June 2023 - June 2024

Enschede, Netherlands

Bachelor's Thesis

September 2020 - April 2021

Department of Physics, University of Toronto

Toronto, Canada

Supervisor: Prof. Nicolas Grisouard

Developing a novel spectral method for solving the Gross-Pitaevskii equation for Bose-Einstein condensates in polar coordinates. Experience with computational physics.

Research Assistant¹

April 2021 - October 2022

Department of Physics, University of Toronto*Supervisor:* Prof. Nicolas Grisouard

Applying the novel Fourier-Bessel based spectral method using the discrete Hankel transform to more general problems. Error analysis and validation of the method. Experience with numerical analysis and spectral theorems.

Summer Undergraduate Research Program

May - September 2018

Canadian Institute for Theoretical Astrophysics

Toronto, Canada

Supervisor: Prof. Norm Murray

Experience with data analysis on Galactic Legacy Infrared Midplane Survey Extraordinaire (GLIMPSE) database.

Research Assistant

January - April 2022

Department of Mechanical Engineering, University of Ottawa*Supervisor:* Prof. Natalie Baddour

Developing a new type of 2-D discrete Fourier transform in polar coordinates using Dini series. Validating the discrete orthogonality relation with Hankel-Scaffidi integral. Experiences with complex analysis.

PROFESSIONAL EXPERIENCE**Intern Technical Interpreter**

October - December 2019

Baoshan Iron & Steel Co., Ltd. & PMC-Colinet Industries

Shanghai, China

Supervisor: Marcello Mameli

Interpretation between English and Mandarin. RPP07-3 CNC pipe finishing machine bearing replacement and refurbishment project at Baoshan Iron & Steel Co., Ltd..

Featured Courses

Toronto: Continuum Mechanics, Computational Physics, Nonlinear Physics, Statistical Mechanics, Groups and Symmetries

Chalmers: Dynamical Systems, Non-equilibrium Processes in Physics Chemistry and Biology, Quantum Field Theory, Artificial Neural Networks

Twente: Advanced Fluid Mechanics, Turbulence, Granular Matter, Advanced Colloids and Interfaces, Physics of Bubbles, Fluids and Elasticity

Programming Skills

Python, Matlab, \LaTeX , Mathematica: Advanced

C, Dedalus Libraries: Intermediate

Latest Update: July 11, 2023

¹As the continuation of the bachelor's thesis.