

# KARTHIK KRISHNAPPA CHANDRASHEKARA

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## EDUCATION

2021 - present	Degree	Doctor of Philosophy
	Heidelberg Graduate School for Physics (HGSFP) Ruprecht-Karls-Universität Heidelberg Specialization in Ultracold Quantum Gases	
	Degree	Master of Science
2016 - 2019	Bonn-Cologne Graduate School of Physics and Astronomy (BCGS) Rheinische Friedrich-Wilhelms-Universität Bonn Specialization in experimental Atomic, Molecular and Optical Physics	
	Degree	Bachelor of Science
2013 - 2016	St. Joseph's College (Autonomous) Bangalore University	

## RESEARCH EXPERIENCE

2021 - present	Graduate	Ph.D. student, PI, Heidelberg
	Involved in building a new Dysprosium quantum gas experiment in the <a href="#">Quantum Fluids</a> working group. Advisor: Dr. Lauriane CHOMAZ	
	Graduate	Research Assistant, IAP, Bonn
2020	Engaged in projects that helped better understand a quantum gas experiment at a technical level from simulating atom cloud dynamics to image processing and building tools for controlling laboratory instruments.	
	Graduate	Master Student, BCGS, Bonn
2019	TITLE: A HIGH POWER TI:SA LASER SYSTEM FOR ATOMIC QUANTUM WALKS EXPERIMENTS Description: Quantified laser frequency noise by the use of an optical frequency discriminator and suppressed it by means of measuring and reducing optical path length differences to prevent spurious transport, heating and loss of ultracold Caesium atoms trapped in a two-dimensional state-dependent optical lattice. Advisor: Prof.Dr. Dieter MESCHEDE	
	Undergraduate	Student Intern, NCBS, Bangalore
	TITLE: BUILDING A NON-LINEAR "ARGUMENTAL" OSCILLATOR Description: Built a working model of a pendulum that oscillates with discrete amplitudes (Doubochinski's pendulum) for use as a feasible alternative to non-linear oscillators in certain experiments at the intersection of Non-Linear Dynamics and Biology. Advisor: Dr. Shashi THUTUPALLI	
2016	Undergraduate	Student Intern, NCBS, Bangalore
	TITLE: INVESTIGATION OF HEAD STABILIZATION IN THE OLEANDER HAWK-MOTH AND THE POSSIBLE ROLE OF MECHANO-SENSORS AND/OR VISION IN ITS MEDIATION Description: Experimentally investigated head stabilization in a moth in order to determine if they actively stabilize their vision mechanically when subjected to a roll perturbation. Advisor: Dr. Sanjay SANE	

## TEACHING EXPERIENCE

	<i>Graduate</i>	Tutor, HGSFP, Heidelberg
Jun '22 - Jun, '23		Tutored and graded students on an experimental course introducing basic optics concepts.
	<i>Graduate</i>	Teaching Assistant, BCGS, Bonn
Oct '18-Mar, '19		Tutored and graded students on problem sheets for the Advanced Quantum Theory course offered by Prof. Dr. Hartmut Monien.

## EMPLOYMENT HISTORY

Feb-Jun, 2020	<i>Scientific Assistant</i>	Institut für Angewandte Physik, Universität Bonn, Germany
Oct '18-Mar, '19	<i>Tutor</i>	Physikalisches Institut, Universität Bonn, Germany

## GRANTS, SCHOLARSHIPS, AWARDS

Jun '22, Jun, '23	<i>Travel Grant</i>	Provided by STRUCTURES YRC
Jul '20-Dec, '20	<i>Graduate student scholarship</i>	Provided by Prof. Dr. Dieter Meschede Institut für Angewandte Physik, Universität Bonn, Germany
April '19-Dec, '19	<i>Master student scholarship</i>	Provided by Prof. Dr. Dieter Meschede Institut für Angewandte Physik, Universität Bonn, Germany

## PUBLICATIONS

2021	Ramola, G., Winkelmann, R., <b>Chandrashekhara, K.</b> , Alt, W., Xu, P., Meschede, D., & Alberti, A., <i>Ramsey Imaging of Optical Traps</i> , <i>Phys. Rev. Applied</i> , <b>16</b> , 024041.
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## SCHOOLS, CONFERENCES, WORKSHOPS, SEMINARS

	<i>Conference</i>	Long-Range Interactions in the Quantum
September, 2023		Donostia-San Sebastian, Spain
	<i>Conference</i>	Quantum Systems at Extreme Conditions
November, 2022		Bingen am Rhein, Germany
	<i>Workshop</i>	Intensive week on Vortex Physics
September, 2022		Kaiserslautern, Germany
	<i>Conference</i>	Young Atom Opticians' Conference
August, 2022		Universität Stuttgart, Germany
	<i>Conference</i>	DPG Spring Meet
March 2019		Universität Rostock, Germany
	<i>School</i>	Weekend Seminars
2017-2019		DPG Physikzentrum, Bad Honnef, Germany
	<i>School</i>	Research Education Advancement Programme
2013-2016		Jawaharlal Nehru Planetarium, Bangalore, India
	<i>School</i>	NCBS Physics of Life Monsoon School 2014
July 2014		Simons Centre for the Study of Living Machines, NCBS, Bangalore, India

## SKILLS

<i>Programming</i>	MATLAB - Extensive experience with the environment - have written entire classes for image analysis and correction, data analysis, modelling and simulation, instrument operation. PYTHON - Basic familiarity. MATHEMATICA - Basic familiarity.
<i>Hands-on</i>	Building basic electronics such as Low Pass Filters, Voltage Limiters, Regulators, Arduino/Raspberry-Pi based circuits, Control Systems design and implementation, familiarity with basic FPGA programming, operation of high-power Lasers, handling of Optics, Opto-Mechanics, use of precision instruments for measurement and data acquisition, hands-on experience with metal fabrication, 3D design and printing.
<i>Languages</i>	English (Full professional proficiency), German (Basic words and phrases)

## REFERENCES

Dr. Lauriane Chomaz · [chomaz@physi.uni-heidelberg.de](mailto:chomaz@physi.uni-heidelberg.de)  
Group leader, *Quantum Fluids*, PI, Universität Heidelberg