

CURRICULUM VITAE

Personal Information

NAME Karl Andreas Pelka, PhD

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NATIONALITY German

DATE AND PLACE OF BIRTH 24/09/1990 in Regensburg, Germany

LANGUAGES German: Native; English: Fluent; French: Intermediate

GENDER Male

MARITAL STATUS Married

Education

PERIOD OF TIME 2018 - 2022

QUALIFICATION Doctor of Philosophy in Physics

INSTITUTION University of Malta

THESIS Cooperative effects in opto- and nanomechanics

PERIOD OF TIME 2014 - 2017

QUALIFICATION Master of Science in Physics (Final grade: 1.10)

INSTITUTION Friedrich-Alexander Universität Erlangen-Nürnberg

THESIS Prime Number Decomposition using the Talbot Effect in First and Second Order Intensity Correlation

STUDENT EXCHANGE Exchange semester with the ERASMUS+ programme

PERIOD OF TIME 01/09/2015 - 31/01/2016

INSTITUTION Université Joseph Fourier Grenoble, France

PROJECT WORK Simulation of biological systems out of thermal equilibrium

PERIOD OF TIME 2011 - 2014

QUALIFICATION Bachelor of Science in Physics (Final grade: 1.69)

INSTITUTION Friedrich-Alexander Universität Erlangen-Nürnberg

THESIS Implementation of Generalized Gauss Sums using Higher Order Intensity Correlations

PERIOD OF TIME 2001 - 2010

QUALIFICATION A-Level (Final grade: 1.6)

INSTITUTION Goethe-Gymnasium Regensburg

Peer Review Referee for

Physical Review Letters, Physical Review X Quantum, Physical Review A, New Journal of Physics, Journal of Optics, Journal of the Optical Society of America A, Physica Scripta

Peer Reviewed Scientific Publications

- 1) K. Pelka, M. Aquilina, A. Xuereb, „Routing entanglement in quantum networks“, [arXiv:2402.08102](#) (2024);
- 2) K. Pelka, G. Madiot, R. Braive, A. Xuereb, “[Floquet control of optomechanical bistability in multimode systems](#)”, Physical Review Letters, Volume 129, p.123603 (2022)
- 3) L. Mercadé, K. Pelka, R. Burgwal, A. Xuereb, A. Martinez, E. Verhagen, “[Floquet phonon lasing in multimode optomechanical systems](#)”, Physical Review Letters, Volume 127, p. 073601 (2021)
- 4) K. Pelka, V. Peano, A. Xuereb, “[Chimera states in small optomechanical arrays](#)”, Physical Review Research, Volume 2, p. 013201 (2020)
- 5) K. Pelka, J. Graf, T. Mehringer and J. von Zanthier, “[Prime number decomposition using the Talbot effect](#)”, Optics Express, Volume 26, p. 15009 (2018)

Scientific Conference Contributions

- 1) Poster: “Nonreciprocal entanglement propagation in open multi-mode arrays”, Gordon Research Conference “Mechanical Systems in the Quantum Regime 2024, Ventura, USA
- 2) Poster: “Floquet dynamics in multimode optomechanical systems”, Gordon Research Conference “Mechanical Systems in the Quantum Regime 2022”, Ventura, USA
- 3) G. Madiot, K. Pelka, Talk: “[Floquet dynamics in photonic crystal optomechanical nanoresonator](#)”, CLEO conference proceeding, 25/06/2021
- 4) Poster: “[Chimera states in small optomechanical arrays](#)”, International Conference on Quantum Optics (University Innsbruck), 25/02/2020, Obergurgl, Austria
- 5) Contributed talk: “[Chimera states in small optomechanical arrays](#)”, HOT conference 2020 (EPFL Lausanne), 20/01/2020, Gstaad, Switzerland
- 6) Contributed talk: “[Chimera states in optomechanical arrays as a consequence of disorder](#)”, School and Workshop on Patterns of Synchrony: Chimera States and Beyond (ICTP Trieste), 10/05/2019, Trieste, Italy
- 7) J. Graf, K. Pelka, Talk: “[Prime number decomposition using the Talbot effect](#)”, DPG Annual conference 2018 (FAU Erlangen-Nürnberg), 05/03/2018, Erlangen, Germany

Science Communication Publications

- 1) K. Pelka, “[What light quanta know about numbers](#)”, World Quantum Day 2021, 14/04/2021
- 2) K. Pelka, T. Apollaro, “[The audience makes a key difference](#)”, Times of Malta, 14/03/2021
- 3) T. Apollaro, K. Pelka, “[Secret Quantum Conversation](#)”, European Quantum Week 2020, 25/11/2020
- 4) K. Pelka, “[A quantum leap for a machine but a giant step for mankind](#)”, Times of Malta, 01/03/2020
- 5) W. Chetcuti, K. Pelka, “[Orchestrating light and controlling matter with optical tweezers](#)”, Times of Malta, 09/12/2018

Work Experience

PERIOD OF TIME	15/09/2021 - 15/11/2022
POSITION	Research Support Officer III for MQSENS
EMPLOYER	University of Malta
PERIOD OF TIME	20/02/2023 - 30/08/2023
POSITION	Teacher Trainee (German: Studienreferendar) for Maths and Physics
EMPLOYER	Hans-Carossa-Gymnasium Landshut
PERIOD OF TIME	15/09/2021 - 15/11/2022
POSITION	Research Support Officer II for Topological Optomechanical Metamaterials
EMPLOYER	University of Malta
PERIOD OF TIME	15/01/2018 - 30/06/2021
POSITION	Research Support Officer I for Hybrid Optomechanical Technologies
EMPLOYER	University of Malta
PERIOD OF TIME	01/09/2016 - 31/10/2016
POSITION	Working Student (German: Werkstudent)
FIELD OF WORK	Conception, preparation, assembly, execution, and analysis of experiments with HTS-bulks; FEM-simulation of electromagnetic systems; analytic sizing of a superconducting DC-motor
EMPLOYER	Siemens Corporate Technology E-Aircraft, Erlangen, Germany
PERIOD OF TIME	15/04/2015 - 15/07/2015
POSITION	Tutor of Physics Laboratory Class for non-physicists
EMPLOYER	Friedrich-Alexander Universität Erlangen-Nürnberg
PERIOD OF TIME	15/10/2012 - 15/02/2013
POSITION	Tutor of Problem Class in "Physics for pharmacists, food chemists, and molecular medics"
EMPLOYER	Friedrich-Alexander Universität Erlangen-Nürnberg
PERIOD OF TIME	01/10/2010 - 31/03/2011
POSITION	Rendering civil service (German: Zivildienstleistender)
EMPLOYER	Don Bosco Zentrum, Regensburg, Germany

Further Qualifications

IT QUALIFICATIONS	Operating Systems: Windows, Linux, Mac OS X; Programming Languages: C, C++, Python, LabVIEW; Computer-Algebra-Systems: Mathematica, Maple; Data Processing: MS Office; CAD-Software: Siemens NX; FEM-Software: MAGNETICS for NX, STAR-CCM+; Documentation: LaTeX, MS Word
SCUBA DIVING	PADI Open Water Scuba Instructor, PADI Specialty Instructor
PERSONAL HOBBIES	Swimming, Music, Languages, Travelling