

CURRENT POSITION

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- **Massachusetts Institute of Technology** Cambridge MA, USA  
*Postdoctoral Fellow* *Sept 2023 –*

EDUCATION

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- **ETH Zürich** Zürich, Switzerland  
*PhD (Dr. sc. ETH Zürich) in Physics;* *Sept 2019 – May 2023*  
*Thesis Title: Fermionic Lieb-Schultz-Mattis Theorems and Invertible Phases of Matter*  
*Advisors: Prof. Dr. Christopher Mudry and Prof. Dr. Manfred Sigrist*  
*Master of Science (M.Sc.) in Physics; GPA: 5.58/6.00* *Sept 2017 – June 2019*
- *Thesis Title: Topological terms for the symmetry class DIII*  
*with quartic interactions in two-dimensional space*  
*Advisor: Dr. Christopher Mudry and Prof. Dr. Manfred Sigrist*
- **Bilkent University** Ankara, Turkey  
*Bachelor of Science (B.Sc.) in Electrical and Electronics Engineering; GPA: 4.00/4.00* *Aug 2012 – June 2017*  
*Valedictorian*
- **Bilkent University** Ankara, Turkey  
*Minor in Physics; GPA: 3.81/4.00* *Sept 2014 – June 2017*
- **National University of Singapore** Singapore  
*Exchange Student in Electrical and Computer Engineering* *Aug 2015 – Dec 2015*
- **Ankara Science High School** Ankara, Turkey  
*Mathematics & Science Program; GPA: 89.29/100* *Aug 2008 – June 2012*

PUBLICATIONS AND PREPRINTS

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- [1] **ÖMA**, Christopher Mudry, Akira Furusaki, and Apoorv Tiwari. *Lieb-Schultz-Mattis anomalies and web of dualities induced by gauging in quantum spin chains*. 2023. arXiv: [2308.00743](https://arxiv.org/abs/2308.00743) [[cond-mat.str-el](#)].
- [2] Heidar Moradi, **ÖMA**, Jens H. Bardarson, and Apoorv Tiwari. *Symmetry fractionalization, mixed-anomalies and dualities in quantum spin models with generalized symmetries*. 2023. arXiv: [2307.01266](https://arxiv.org/abs/2307.01266) [[cond-mat.str-el](#)].
- [3] **ÖMA**, Anirudh Chandrasekaran, Apoorv Tiwari, Titus Neupert, Claudio Chamon, and Christopher Mudry. “Single monkey-saddle singularity of a Fermi surface and its instabilities”. *Phys. Rev. B* **107** (20 2023), [205129](#).
- [4] **ÖMA** and Christopher Mudry. “Elementary derivation of the stacking rules of invertible fermionic topological phases in one dimension”. *Phys. Rev. B* **106** (3 2022), [035117](#).
- [5] **ÖMA**, Apoorv Tiwari, and Christopher Mudry. “Lieb-Schultz-Mattis type theorems for Majorana models with discrete symmetries”. *Phys. Rev. B* **104** (7 2021), [075146](#).
- [6] **ÖMA**, Jyong-Hao Chen, Shinsei Ryu, Akira Furusaki, and Christopher Mudry. “Stability against contact interactions of a topological superconductor in two-dimensional space protected by time-reversal and reflection symmetries”. *Phys. Rev. B* **103** (20 2021), [205121](#).
- [7] **ÖMA** and John R. Tolsma. “Majorana zero modes in a quantum wire platform without Rashba spin-orbit coupling”. *Phys. Rev. B* **101** (19 2020), [195127](#).
- [8] S. Bettler, F. Landolt, **ÖMA**, Z. Yan, S. Gvasaliya, Y. Qiu, E. Ressouche, K. Beauvois, S. Raymond, A. N. Ponomaryov, S. A. Zvyagin, and A. Zheludev. “Magnetic structure and spin waves in the frustrated ferro-antiferromagnet  $\text{Pb}_2\text{VO}(\text{PO}_4)_2$ ”. *Phys. Rev. B* **99** (18 2019), [184437](#).

## HONORS & AWARDS

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- **ETH Zürich, ETH Medal for Outstanding Doctoral Thesis (2023)**
- **Bilkent University EEE Department, Academic Excellence Award (2017)**
- **Fulbright PhD Scholarship for Theoretical Physics (2016) (turned down)**
- **University of Singapore, IEEE MTT/AP First Prize (2015)**
- **Bilkent University Comprehensive Scholarship**

## TEACHING EXPERIENCE

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- **EPFL** Lausanne, Switzerland  
*Substitute Lecturer* *Sept 2019 - June 2022*
  - Some aspects of topology in condensed matter physics, Fall 2019, Fall 2021
- **ETH Zürich** Zürich, Switzerland  
*Teaching Assistant* *Sept 2019 - June 2022*
  - Field Theory in Condensed Matter Physics, Spring 2022
  - Solid State Theory, Spring 2021
  - Symmetries in Physics, Spring 2020
- **Private Tutor** Ankara, Turkey  
*Private tutoring for 1<sup>st</sup>/2<sup>nd</sup> year students in Calculus I-II, General Physics I-II, Linear Algebra.* *Jan 2017 - June 2017*
- **Bilkent University** Ankara, Turkey  
*Teaching Assistant* *June 2014 - Jan 2015*
  - **PHYS101 General Physics I** Grading weekly quizzes.

## MISCELLANEOUS

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### Related Experience

- **Department of Management, Technology and Economics, ETH Zürich** Zürich, Switzerland  
*Student Research Assistantship* *June 2018 - June 2019*  
Critical reading, checking validity of the proofs and arguments presented and proofreading the papers written in the group of Prof. Dr. Hans Gersbach.
- **Fraunhofer IIS** Ilmenau, Germany  
*Summer Internship* *Jun 2016 - Sept 2016*  
Implemented another approach for sub-Nyquist sampling of analog signals using compressed sensing to decrease the number of channels in exchange of increased sampling rate.
- **GDS Engineering** Ankara, Turkey  
*Summer Internship* *Jun 2015 - Aug 2015*  
Built a Bluetooth connection system that transmits/receives various measurement data between a smart phone and TI CC2541 SensorTag via Intel Edison micro-controller.

### Related Projects

- **Senior Project in B.Sc.** *Sept 2016 - June 2017*  
A robust control system utilizing only computer vision algorithms for tracking a moving target and imposing two laser points on it. Project is completed in collaboration with Roketsan Missiles Inc. as a group of five students.

**Language Classification***Sept 2016 - Jan 2017*

Statistical learning project implemented using three different learning methods that classifies a given word into four predetermined classes.

**Two-Player Car Race***Sept 2014 - Jan 2015*

A car race for 2 players created by using Basys 2 FPGA board, PS2 keyboard and VGA monitor used as I/O devices.

**Charge Frenzy***Feb 2014 - June 2014*

A Java based educational puzzle game which simulates motion of charged particles under electrostatic forces.