

Ali Emami Kopaei

Personal Details

Name – Ali Emami kopaei

Gender– Male

Place and Date of Birth – Iran | 07 June 1994

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Profile

I am currently a Ph.D. student in physics at the Jagiellonian University, Krakow, Poland. Here, I joined the group of Prof. Krzysztof Sacha. My field of research and interest mostly involves the study of Time Crystalline behavior.

Education

Ph.D of physics, Jagiellonian university in Poland

Master of physics, Sharif University of Technology

Grade : 18,8/20

October, 2017

Research interests:

- 1- Time Crystal
 - 2- ultra-cold atoms
 - 3- Computational physics
 - 4- Neural Network
 - 5- Machine Learning
 - 6- Quantum machine learning
 - 7- Condensed Matter
 - 8- Quantum Many-Body Physics
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Expertise in Computational Condensed Matter Physics:

1. Artificial Neural Network based Machine Learning

2. Deep Learning Phases of Matter
3. Tensor Network Methods (MPS,PEPS)
4. Exact Diagonalization
5. Density matrix renormalization group (DMRG)
6. time-evolving block decimation (TEBD)
7. Quantum Monte Carlo
8. Krylov Subspace Iteration Methods
9. Message Passing Interface (MPI)

Skill

LINUX (★★★★★ - Expert)

SLEPc,PETSc,MUMPS packages(★★★★★ - Expert)

PYTHON(★★★★★ - Expert)

XLEATEX(★★★★★ - Expert)

TensorFlow(★★★★★ - Expert),

LATEX(★★★★★ - Expert)

SciKit-Learn(★★★★★ - Expert)

FORTRAN(★★★★☆ - Experienced)

Theano(★★★★★ - Expert)

ITensor libraries(★★★★★ - Expert)

MATHEMATICA(★★★★★ - Expert) QuSpin and QuTIP Packages(★★★★★ - Expert) Tenpy(★★★★★ - Expert)

Honors

Received research scholarship for National Science Centre Poland in 2020 and 2022

Received research grant for Jagiellonian University in 2020 and 2022

Ranked top 0.5% in the university arrival test around the country in Physics

Ranked 9th in the university arrival test around the country in Photonics

Received research grant for Sharif University in 2018 and 2019

Publications

H.Yarloo, **A.Emami Kopaei** and A.Langari

“Homogeneous Floquet time crystal from weak ergodicity breaking” (Phys. Rev. B 102, 224309)

A. Emami Kopaei, Xuedong Tian, Krzysztof Giergiel, and Krzysztof Sacha
“Topological Molecules and Topological Localization of a Rydberg Electron on a Classical Orbit”(Phys. Rev. A 106, L031301)

Certifications

July 2022 : Munich Conference on QST, Munich, Germany.
Jan 2022 : MagLab Theory Winter School 2022 Poster sessions.
Mar 2021 : Conference on Time Crystals (8 - 10 March 2021), ICTP, Italy.
Feb 2021 : New perspectives on quantum many-body chaos. (Online)
Feb 2021 : Entanglement in Strongly Correlated Systems. (Online)
Jul 2021 : Munich Conference on Quantum Science and Technology. (Online)
Sep 2021 : Quantum Optics X conference. Toruń, Poland
July 2018 : Deep Learning with TensorFlow, Laboratory of Intelligent Systems, Tehran, Iran,
Sep 2018 : machine learning application in condensed matter , Tehran University , Tehran,
Sep 2016 : Advanced school on condensed matter physics - Many-body localization, School of Physics, IPM, Tehran, Iran, Sept. 17-18, 2016

Teaching Experience

Oct 2022: Selected issues of theoretical physics II (II degree physics). Jagiellonian university.
Feb 2022: ultra-cold atoms in physics (II degree physics). Jagiellonian university.
Feb 2019: Introduction to Electrodynamics (Instructor: Dr.Langari), Sharif University of Technology
Feb 2019: Fundamentals of Statistical and Thermal Physics (Instructor: Dr.Moghim), Sharif University of Technology

Languages

Persian

★★★★★ - Native speaker

English

★★★★☆ - Highly proficient in speaking and writing

Polish

★★☆☆☆ - basic

REFERENCSE

PROF. Krzysztof Sacha, Jagiellonian university in Poland.

krzysztof.sacha@uj.edu.pl

PROF. Jakub Zakrzewski, Jagiellonian university in Poland.

jakub.zakrzewski@uj.edu.pl