

Yavuz Selim Karakaş

M.Sc. Student in Advanced Methods in Particle Physics

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PROFILE

I am a Physics graduate from Istanbul University and currently a Master's student in the International Master in Advanced Methods in Particle Physics (IMAPP) program, studying across Université Clermont Auvergne (France), TU Dortmund (Germany), and Università di Bologna (Italy).

My academic and research background combines hands-on experience with scintillator detectors and related electronics, Monte Carlo simulations using Geant4, and development of both front-end and back-end software tools for physics applications. I am also skilled in working with development boards such as Arduino, Red Pitaya, and Raspberry Pi, as well as data acquisition and visualization techniques.

I am eager to further develop my expertise in experimental and computational particle physics while contributing to international collaborations and research environments.

EDUCATION

2025 – present	Master of Science · Advanced Methods in Particle Physics <i>Université Clermont Auvergne · Technische Universität Dortmund · Università di Bologna</i> Erasmus Mundus Joint Master IMAPP: imapp.eu
2021 – 2025	Bachelor of Science · Physics <i>Istanbul University</i> GPA: 3.27 / 4.00 · Graduated with honors.

HONORS & AWARDS

Jul 2025	Certificate of Honor <i>Istanbul University Faculty of Science</i> Certificate of Honor for high academic standing during undergraduate studies in Physics.
May 2025	Graduation Project Poster Presentation Award <i>Istanbul University Faculty of Science, Department of Physics</i> Ranked 2nd among 47 graduation project posters.

TALKS

- Mar 2026 **Energy-Dependent Performance of Diffuse and Specular Reflectors in Plastic Scintillation Detectors**
11th BCD ISHEP Cargèse School — Young Scientist Forum · Cargèse, France
- May 2025 **Theoretical and Experimental Investigation of the Effect of Reflective Coating Materials on Energy-Dependent Light Collection Efficiency in Scintillator Detectors**
Istanbul High Energy Physics Workshop (YEFIST) 2025 · Marmara University, Istanbul
Indico: indico.cern.ch/event/1532019/contributions/6526620/
- Jan 2024 **Investigation of the Effects of Surface Coating Materials and Geometries on Counting Efficiency in Scintillator Detectors via GEANT4 Simulations**
National Workshop on Particle Accelerator and Detector Infrastructures and R&D · Istinye University, Istanbul
The only undergraduate admitted to present a paper. Abstract included in the conference booklet (e-ISBN: 978-625-94062-4-4).
Indico: indico.cern.ch/event/1434046/contributions/6253313/

LEADERSHIP & COMMUNITY

- May 2022 – Oct 2024 **President — Istanbul University Physics Club**
Istanbul University
Organised 2 conferences, 2 workshops and 7 seminars on current developments in physics; grew student engagement through interactive events.

TECHNICAL SKILLS

Programming Languages

C++, Python, Fortran, VHDL

Libraries & Toolkits

Geant4, ROOT, NumPy, Pandas, Matplotlib, SciPy, Tkinter, Qt, CMake

Hardware Platforms

FPGA, Red Pitaya, Raspberry Pi, Arduino, NVIDIA Jetson Orin Nano

Software

MATLAB, FreeCAD, UltiMaker Cura, Adobe Photoshop, Canva

CERTIFICATIONS & TRAINING

Feb 2025 **ISO 17025:2017 Laboratory Competency Training**

IPC & Sisbel

Feb 2024 **Introduction to Machine Learning**

Istanbul University

Oct 2023 **Geant4 Advanced Training Course**

CERN, Switzerland

Oct 2023 **Introduction to Particle Accelerators**

Lund University (online)

Jul 2023 **Particle Physics: An Introduction**

University of Geneva (online)

Jul 2023 **Quantum Mechanics**

University of Colorado Boulder (online)

Aug 2019 **The Evolving Universe**

Caltech (online)

EVENTS ORGANISED

Feb 2024 **Head of Organising Committee — 13th Istanbul University Physics Workshop**

Istanbul University

Turkey's largest public physics workshop: 4,000+ participants, a budget above ₺3 million, 7 speakers and 3 panellists.

2022 – 2024 **Head of Organising Committee — Engin Arık Physics Seminar Series (7 seminars)**

Istanbul University

Organised a seven-part seminar series with prominent physicists in hybrid format.

Aug 2023 **Head of Organising Committee — Robotic Coding Camp**

Istanbul University

Selected 40 participants from 1,000+ applicants across 30 universities; provided seminars, hands-on training and free equipment.

- Mar 2023 **Head of Local Organising Committee — Training Course on Synchrotron Light in Archaeology and Cultural Heritage**
Istanbul University
Coordinated an international workshop with 200+ participants.
- Sep 2022 **Head of Local Organising Committee — HESEB (Helmholtz–SESAME) Soft X-ray Beamline Workshop**
Istanbul University
International workshop with 200 in-person and 300 online participants.

CONFERENCES ATTENDED

- Feb 2025 **17th Vienna Conference on Instrumentation (VCI)**
TU Wien
- Dec 2024 **Particle Accelerators and Detectors Workshop**
Istinye University
- Sep 2024 **2nd General Meeting of COST Action COSMIC WISPerS**
Istinye University
- Tem 2024 **Nuclear Power Plants Expo & Summit (NPPES)**
İstanbul
- Oct 2023 **Istanbul High Energy Physics Workshop**
Yıldız Technical University

LANGUAGES

Turkish

Native

English

Fluent

German

Beginner

French

Beginner