Zeinab Abdelhalim Abdelrazik

Personal Data

Date of Birth:	09 Feb. 1993
Nationality:	Egyptian
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Education

2023 Master's degree in theoretical physics.
2018 *Physics Department,faculty of science, Cairo university.*
Including per-master courses year in theoretical physics.
M.Sc. thesis title:Thermodynamics of Nuclear Matter at High Energy Nuclear Reactions.

2015 Bachelor of Science Degree in Physics.
2011 *Physics Department,faculty of science, Cairo university.*
Accumulative Grade: Very Good
PERCENTAGE: 78.69 %

Work Experience

Current Lecturer Assistant
2024 *Physics Department,faculty of science, Cairo university.*

2024 Teaching Assistant
2017 *Physics Department,faculty of science, Cairo university.*
-Instructing students through various laboratories on the essential disciplines of physics. In addition, I assist professors in certain courses by delivering tutorials and developing assignments and quizzes to meet the course's objectives.
Courses details:
- PHY101 and PHY102 General Physics lab.
- PHY201 fundamentals of Classical mechanics and thermodynamics lab.
- PHY202 fundamentals of electromagnetic and modern physics lab.
-PHY245 Fundamental Programming course with c++ language.
-PHY247 Numerical methods course with MATHMETICA software.
-PHY404 Nuclear physics lab.
-PHY381 Nuclear physics course.

2017 Science instructor
2016 *BEDO planet project, segment at Computek international company.*
-Delivering science sessions to students range from 9 to 16 years old with innovative learning techniques due to "ESTEM" program.

Research experience

• Through my bachelor's project, I used a simulation toolkit (GEANT4 library) to simulate a basic beta spectrometer that consists of a strontium 90 beta source, a uniformly intense magnetic field perpendicular to the beta track plane, and a counter to measure the rate at which deflected beta particles occur. The objective was to determine how the intensity of beta flux affected the characteristics of the beta spectrum. After investigating the beta spectrum using the ROOT data analysis framework, I concluded that the resolution of the spectrum diminishes as the initial flow of beta particles decreases.

• In the master's degree stage,I studied the experimental data of hadronic and heavy-ion collisions at high energies to investigate the nuclear matter under extreme conditions of temperature and density. Under such conditions, the nuclear matter undergoes different phase transitions from the hadronic matter to the quark gluon plasma (QGP) matter. The phase transition mechanism was investigated using thermo-statistical models based on that the correlation between the distribution of experimental quantities such as the transverse momentum and multiplicity of the produced particles and the microscopic hypotheses of the transition mechanism.The study revealed various significant results, such as that the average kinetic freeze-out temperature of the produced charged hadrons increases with collision centrality. Moreover, applying the Tsallis' statistics tool to extract the temperature, chemical potential, and non-equilibrium index at the kinetic freeze-out stage reveals the possible mechanism of particle production through proton-proton and heavy ion collisions at the different center-of-mass energies.

List of publications

1- Mohamed Tarek Hussein, **Zeinab Abdel-Halim**, Mohamed Tawfik Ghoneim."Proton-Proton collisions in view of thermo-statistical approach". Journal of High Energy Physics,Gravitation and Cosmology, 2023, 9, 475-488.
Doi:https://doi.org/10.4236/jhepgc.2023.92036.

2- Mohamed Tarek Hussein,Mohamed Tawfik Ghoneim, **Zeinab Abdel-Halim**."Signs of phase transition in high energy proton-proton collisions". Journal of Applied Mathematics and Physics, 2022, 10, 1887-1897.
Doi:https://doi.org/10.4236/jamp.2022.106129.

Training and Courses

Sep. 2024	CERN school of computing. Deutches Elektronen-Synchroton (DESY) , Hamburg (Germany).
Aug. 2024	Second ArPS summer school on advanced physics. Zewail City of Science and Technology, Giza (Egypt).
July. 2024	8^{th} Biennial African School of Fundamental Physics and Applications (remotely) International Centre for Theoretical Physics (ICTP).
May. 2021	Data analysis professional course, Nanodegree Program Udacity.
Jan. 2019	The 7^{th} Egyptian School on High Energy Physics Faculty of science, Ain shams university, Cairo (Egypt).
Dec. 2016	The 6^{th} Egyptian School on High Energy Physics Centre for theoretical Physics, British university, Cairo (Egypt).
Nov. 2015	The 5^{th} Egyptian School on High Energy Physics Centre for Fundamental Physics, Zewail City of Science and Technology, Giza (Egypt).
Aug. 2015	Workshop of syndicate of scientific professions Zewail City of science and technology, Giza (Egypt).
Aug. 2014	Training at Physics Department National Research Centre, Giza (Egypt).

Professional workshops

Jun. 2023	Fundamentals of digital transformation High technology design center(HTC),faculty of engineering, Giza (Egypt).
Jan. 2021	Critical Thinking the Faculty and Leadership Development center(FLDC), Giza (Egypt).
Dec. 2020	Essentials of integrated education the Faculty and Leadership Development center(FLDC), Giza (Egypt).
jan. 2020	Managing time and meetings the Faculty and Leadership Development center(FLDC), Giza (Egypt).
Sep. 2019	Effective Teaching skills the Faculty and Leadership Development center(FLDC), Giza (Egypt).
July. 2019	International publication of scientific research the Faculty and Leadership Development center(FLDC), Giza (Egypt).
jun. 2018	Exam systems and evaluation of students the Faculty and Leadership Development center(FLDC), Giza (Egypt)

Languages

Arabic:	Mother Tongue
English:	Very Good

Computer Skills

Basic Knowledge:	Office suite, C++,Linux, Mathematica.
Intermediate Knowledge:	ROOT, Geant4, Python.

REFERENCES

Upon Request