



Mohamed Salaheldeen

Graduate Student

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Positions

OCT 2023 - **Teaching Assistant,**

Present *Departement of Applied Mathematics, Zewail City, Giza, Egypt.*

- Partial Differential Equations and Complex Analysis
- Discrete Mathematics

Education

Sep 2022 - **Postgraduate Diploma Programme in High Energy Physics,**

Aug 2023 *The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy.*

- **Research Project:** 2D Topological Field theories under supervision of Prof. Pavel Putrov.

Sep 2018 - **Bachelor of Science, Physics,**

Jun 2022 *University of Science and Technology at Zewail City, Giza, Egypt.*

- GPA: 3.87 (1.2 German grading scale)
- Provost's honor rol 8 semesters (GPA higher than 3.7 per semester)
- **Graduation Thesis:** "Spherically symmetric solutions in modified Teleparallel gravity" under the supervision of Prof. Alexey Golovnev.
- Courses project:
 - **PDE Course:** "Numerical and analytical solutions for the Korteweg de-Vries Equation for Solitons" under the supervision of Dr. Abdallah Abotahoon

Sep 2015 - **High School Diploma,**

May 2018 *STEM Egypt, Red Sea, Egypt.*

- GPA 3.85. Honor Classes
- Micro Research Grants for School Students (MRG), 2016, Center of Special Studies and Programs, Bibliotheca Alexandrina, Egypt.
- Fundamentals of Research Writing, 2018, American University in Cairo, Cairo, Egypt.

Research Experience

- Sep 2021 - **Online Training, Numerical methods in theory of topological solitons,**
Nov 2021 *Bogoliubov Laboratory of Theoretical Physics, Dubna, Russia.*
○ Supervised by Prof Yakov Shnir
○ **Project:** Studying various numerical techniques in construction of solitons in scalar field theories in flat and curved spacetime.
- Sep 2021 - **Online Training, Calculation of Cross section for the process**
Oct 2021 $e^-e^+ \rightarrow \mu^-\mu^+$ **within the QED Lagrangian,**
Physics department, Basel University.
○ Supervised by Dr. Ahmed Hammad
○ **Project:** Investigation of $e^-e^+ \rightarrow \mu^-\mu^+$ within QED Lagrangian. Calculation of helicity eigenstates using python code.
- Aug 2021 - **Internship, Symmetries in Einstein Field equation,**
Sep 2021 *Center of Fundamental Physics, Giza, Egypt.*
○ Supervised by Prof. Shaaban Khalil
○ **Project:** Studying of Symmetries in Einstein field Equations for the elementary derivation of Schwarzschild and Kerr Metrics.
- April 2021 - **Online Training, Analysis and interactive visualization of neutrino**
July 2021 **event topologies registered in the OPERA experiment,**
Dzhelepov Laboratory of Nuclear Problems, Dubna, Russia.
○ Supervised by Dr Sergey Dmitrievsky
○ **Project:** Developing a C++ program to investigate various events on neutrino oscillations. Visualization mainly utilized ROOT framework.
- Mar 2021 - **Cosmological perturbation theory using N-body simulation in**
June 2021 **Λ CDM model,**
British university in Egypt, Cairo, Egypt.
○ Supervised by Dr. Mahmoud Hashim
○ **Project:** Developing a simulation model for cold dark matter for with Newtonian approximation using Gadget and Class software.
- Oct 2020 - **Modelling of Hydrogen interactions in pharmaceutical drugs,**
Feb 2021 *Cairo University, Giza, Egypt.*
○ Supervised by: Dr. Rashaa Elnashar
○ **Project:** Investigation of various binding sites in linagliptin saxagliptin drugs for pharmaceutical purposes. DFT calculation utilized Gaussian software.
- Jan 2019 - **Undergraduate Research Assistant,**
Mar 2020 *Center of Material Science, Giza, Egypt.*
○ Computational Materials Physics using Quantum Espresso Online Training ,2020, Ghent University, Belgium.
○ Gaussian and DFT (Density Functional Theory) Calculations for modeling materials. Worked with software programs, mainly Quantum Espresso and Gaussian.

Teaching Experience

- Nov 2018 **Instructor, IEEE Engineering committee,**
University of Science and Technology at Zewail City, Giza, Egypt.
- IoT Workshop: I taught IoT Session about the cloud and supervised final project assessments. Average attendance (60).
 - Winter Training 2019: I taught C++ Programming and prepared presentations. Average attendance (100).

Schools and Conferences

- Jul 2021 **Summer School on Cosmology, Inflation theory and black holes,**
British University in Egypt, Cairo, Egypt.
- Mar 2016 **National Science Week, Speaker,** Red Sea, Egypt.
- General public talk on black holes detection. Average Attendance (200).

Competitions

- Dec 2020 **Finalist,**
XI International Natural Sciences Tournament, Moscow, Russia.
- Jan 2017 **Outstanding material science exhibit special award,**
ASM Materials Education Foundation, Luxor, Egypt.
- Sept 2016 **National Finalist,**
International Physics Olympiad (IPHO), Nile University.

Extracurricular Activities

- 2020 **President,**
Cairo Young Minds section, European Physical Society, Cairo, Egypt.
- 2019 **Member,**
Latex Team, Zewail City Open Course Ware, University of Science and Technology at Zewail City.
- 2018–2020 **Member,**
IEEE Engineering Committee, University of Science and Technology at Zewail City.
- 2016 **Assistant,**
Microsoft in Education camp, Microsoft Learning, Egypt.

Computer Skills

- 2021 **Data analysis Professional Nanodegree,**
Udacity.
- 2016 **Microsoft Office Specialist Master,**
Microsoft Learning, California, USA.
- 2012 **International Computer Driving License,**
ICDL Arabia, Giza, Egypt.

████████ Personal Information

- **Citizenship:** Egyptian.
- **Languages:** Arabic (Native), English (Excellent), German (Basic).

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Available Upon Request