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Postdoctoral Fellow, GSI Helmholtz Centre for Heavy Ion Research

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📍 Darmstadt, Germany



🔧 EXPERIENCE

Postdoctoral Fellow

GSI Helmholtz Centre for Heavy Ion Research

📅 March 2022 📍 Darmstadt, Germany

- Developing a partial wave amplitude analysis software for pion induced reactions. Analyzing Hyperon spectroscopy data at the HADES experiment. Mentoring students.

Postdoctoral Fellow

Department of Physics, University of Regina

📅 Feb 2021 - Dec 2021 📍 Regina, SK, Canada

- Mentoring students. Apply corrections to the total and differential crosssection of the $\omega\pi^0$ photoproduction. Improve software to simulate and analyze pseudoscalar-vector decay channels in partial waves bases.

Doctoral Candidate

Department of Physics, University of Regina

📅 Sep 2014 - Dec 2020 📍 Regina, SK, Canada

- Extracting total and differential crosssection of the $\omega\pi^0$ photoproduction. Developing software to: monitor gain drifts and radiation damage in Barrel Calorimeter, simulate and analyze the $\omega\pi^0$ decay channel in angular moments and partial waves bases.

Teaching Assistant

Department of Physics, University of Regina

📅 Sep 2014 - Dec 2020 📍 Regina, SK, Canada

- Instructing students in Phys-109 (General Physics I), Phys-119 (General Physics II) labs and Phys-201 (Electricity and Magnetism) Tutorials and labs. Marking lab reports and final exams.

University Teaching Fellow

Department of Physics, University of Regina

📅 Jan 2020 - Feb 2020 📍 Regina, SK, Canada

- Instructing students in Phys-119 (General Physics II) labs and marking lab reports.

🔗 PUBLICATIONS

- **Search for photoproduction of axion-like particles at GlueX**
GlueX Collaboration, arXiv preprint, (2021).
- **Measurement of Spin Density Matrix Elements in $\Lambda(1520)$ Photoproduction at 8.2-8.8 GeV**
GlueX Collaboration, arXiv preprint, (2021).
- **Measurement of beam asymmetry for $\pi^- \Delta^{++}$ photoproduction on the proton at $E_\gamma = 8.5$ GeV**
GlueX Collaboration, Physical Review C, 103, 2, L022201, (2021).
- **The GlueX Beamline and Detector**
GlueX Collaboration, Nuclear Instruments and Methods in Physics Research Section A, 987, 164807, (2021).
- **Measurement of the photon beam asymmetry in $\gamma p \rightarrow K^+ \Sigma^0$ at $E_\gamma = 8.5$ GeV**
GlueX Collaboration, Physical Review C, 101, 6, 065206, (2020).
- **Beam Asymmetry Σ for the Photoproduction of η and η' Mesons at $E_\gamma = 8.8$ GeV**
GlueX Collaboration, Phys. Rev. C, 100, 5, 052201, (2019).
- **First measurement of near-threshold J/ψ exclusive photoproduction off the proton**
GlueX Collaboration, Phys. Rev. Lett., 123, 7, 072001, (2019).
- **Construction and Performance of the Barrel Electromagnetic Calorimeter for the GlueX Experiment**
T. D. Beattie, A. M. Foda, C. L. Henschel, et al., Nuclear Instruments and Methods in Physics Research Section A, 896, 24-42, (2018).
- **Strange Hadron Spectroscopy with a Secondary K_L Beam at GlueX**
GlueX Collaboration, Proposal for JLab PAC45, PR12-17-001, (2017).
- **Measurement of the beam asymmetry Σ for π^0 and η photoproduction on the proton at $E_\gamma = 9$ GeV**
GlueX Collaboration, Phys. Rev. C, 95, 042201(R), (2017).

Teaching Assistant

Department of Physics, American University in Cairo

📅 Jan 2014 – Jul 2014

📍 New Cairo, Egypt

- Instructing students during tutorials Phys-211 (Foundations of Modern Physics) and Phys-506 (Advanced Quantum Mechanics). Helping students solving assignment problems. Marking assignments and exams.

Junior Research Fellow

Dzhelepov Laboratory of Nuclear Problems, JINR

📅 Sep – Dec 2013

📍 Dubna, Russia

- Creating a simulation for an emulsion plate cosmic muon detector in GEANT4. Track reconstruction on emulsion plates for the OPERA experiment.

Teaching Assistant

School of Engineering, Nile University

📅 Jan 2012 – Feb 2013

📍 Giza, Egypt

- Designing experiments for Phys-101 (General Physics) lab. Instructing students during lab sessions. Invigilating and marking assignments and exams.

🎓 EDUCATION

Ph.D. Physics

University of Regina

📅 Sep 2014 – Jan 2021

📍 Regina, SK, Canada

Thesis title: Photoproduction of the $b_1(1235)$ meson off the proton at $E_\gamma = 6-12$ GeV

M.Sc. Nanotechnology

Nile University

📅 Jul 2010 – Aug 2013

📍 Cairo, Egypt

Thesis title: Investigating Band Gap Energy of Quantum Dot Doped Semiconductors

B.Sc. Physics (Ranked 3rd)

Cairo University

📅 Sep 2006 – Jun 2009

📍 Giza, Egypt

Graduation Project: Computer Simulation in Physics Using FORTRAN Language

- **First Results from The GlueX Experiment**
GlueX Collaboration, Phys. Rev. C, 95, 042201, (2016).
- **Shapiro and Parametric Resonances in Coupled Josephson Junctions**
Gaafar, Ma. A.; Shukrinov, Yu. M.; Foda, A. Journal of Physics : Conference Series, (2012).

👤 CONFERENCE TALKS

- **Partial Wave Analysis for Pion-Induced Resonance Studies in the HADES Experiment** Oct, 2023.
The 16th International Conference on Meson-Nucleon Physics and the Structure of the Nucleon (MENU), Germany.
- **Resonance Regions: Partial Wave Analysis in the HADES Experiment** Mar, 2023.
DPG Spring Meeting of the Matter and Cosmos Section (SMuK), Germany.
- **Photoproduction of the $b_1(1235)$ meson off the proton at $E_\gamma = 6-12$ GeV** Apr, 2021.
9th Workshop of the APS Topical Group on Hadronic Physics, USA.
- **Photoproduction of the $b_1(1235)$ meson in GlueX** Feb, 2019.
56th Winter Nuclear & Particle Physics Conference, Banff, AB, CA.
- **Photoproduction of the $b_1(1235)$ meson in GlueX** Oct, 2017.
Foda, A. M.; Papandreou, Z.; GlueX Collaboration, APS Division of Nuclear Physics Meeting, Pittsburgh, PA, USA.
- **Photoproduction of the $\pi^+\pi^-4\gamma$ final state in GlueX** Feb, 2017.
54th Winter Nuclear & Particle Physics Conference, Banff, AB, CA.

💻 SOFTWARE

LaTeX	●	●	●	●	●
Linux	●	●	●	●	●
C++	●	●	●	●	●
FORTRAN	●	●	●	●	●

🗣️ LANGUAGES

Arabic	●	●	●	●	●
English	●	●	●	●	●
French	●	●	●	●	●
German	●	●	●	●	●

🔍 RESEARCH INTERESTS

