

# AHMED MARWAN FODA, Ph.D.

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 2022 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  $\Sigma$  for the Photoproduction of  $\eta$  and  $\eta'$  Mesons at  $E_\gamma = 8.8$  GeV**  
GlueX Collaboration, Phys. Rev. C, 100, 5, 052201, (2019).
- First measurement of near-threshold  $J/\psi$  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  $\Sigma$  for  $\pi^0$  and  $\eta$  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

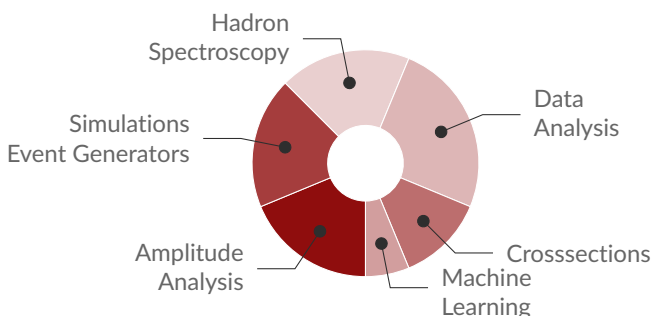
B.Sc. Physics (Ranked 3rd)

Cairo University

Sep 2006 – Jun 2009 Giza, Egypt

Graduation Project: Computer Simulation in Physics Using FORTRAN Language

RESEARCH INTERESTS



- 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

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LANGUAGES

Arabic  
English  
French  
German

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