

Mahmoud Alstaty, PhD

📍 Office: Arts and Sciences Building-230, Arab American University | Jenin | Palestine

✉️ mahmoud.alstaty@aaup.edu



Education

2014-2017 **Ph.D., EXPERIMENTAL PARTICLE PHYSICS** Aix-Marseille University (France)

- Based at the European Organization for Nuclear Research (CERN), Geneva, Switzerland, via a CERN employment contract under the Doctoral Student Programme. [🔗](#)
- Dissertation Topic: "Commissioning of the ATLAS Pixel Detector at Run 2 of the LHC, and Search for Supersymmetric Particles with Two Same-Sign Leptons or Three Leptons in the Final State".

2010-2013 **MASTER OF SCIENCE, PHYSICS** Birzeit University (Palestine)

- Thesis Topic: "The Binding Energy of a Deuteron Immersed in a Vapor of Nucleons".

2006-2009 **BACHELOR OF SCIENCE, PHYSICS** Arab American University (Palestine)

- GPA: 3.79, excellent standing: the best student in the 2009 class of physics graduates.

2006 **THE GENERAL SECONDARY SCHOOL EXAMINATION (TAWJIHI)** (Palestine)

- Score: 99.0%, ranked as the 4th-best student in the scientific stream on the national level.

Academic Experience

2020-Present **ASSISTANT PROFESSOR OF PHYSICS** Arab American University, Jenin (Palestine)

2019-2020 **ADJUNCT PROFESSOR OF PHYSICS** Arab American University, Jenin (Palestine)

2018-2019 **ADJUNCT PROFESSOR OF PHYSICS** Bethlehem University, Bethlehem (Palestine)

2018-2019 **ADJUNCT PROFESSOR OF PHYSICS** Palestine Polytechnic University, Hebron (Palestine)

2010-2013 **TEACHING AND RESEARCH ASSISTANT** Physics Department, Birzeit University (Palestine)

Other Experiences

2022-Present Working closely with the **Office of Advisor to the Board of Directors for Planning and Development** at Arab American University (AAUP) as well as its subunit (**Quality Promotion Office**) on various projects, which include but are not limited to:

- Strategic planning (as a member of the Infrastructure Subcommittee in the team preparing the next 5-years Strategic Plan for AAUP)
- Internal auditing
- Syllabus Builder development
- University rankings related issues
- Institutional research
- Data analytics

Research Profile

- h -index: 112
- ORCID number: 0000-0002-5632-4878
- Total citations: 40,401 Details can be found on INSPIRE-HEP database [🔗](#)
- Google scholar link: [🔗](#)

Research Interests

- Commissioning of semiconductor-based particle detectors.
- Beyond the Standard Model Physics (search for supersymmetric particles).
- Particle clustering and Mott transition in finite hot nuclear matter.
- Shape deformation in transitional nuclei.
- Curriculum development and methods of teaching science.

Courses Taught

- Modern Physics
- Medical Physics (for Medicine)
- Classical Mechanics I
- Statistical Mechanics
- Mathematical Physics I
- Mathematics and Software Packages for Physics
- Vibrations and Waves
- General Physics I
- General Physics II
- General Physics III
- Introduction to Electronics
- Introduction to Electronics Laboratory
- Basic Physics
- Pre-Physics
- Physics For Medical Students (for Dentistry)
- Physics For Medical Sciences
- Physics For Medical Students Laboratory
- Thermal Energy and Heat Transfer (for Electrical Engineering)
- Seminar

Outreach and Science Communication

I am genuinely interested in bridging the gaps between science (physics, in particular) and the general public on one hand, and between physics majors and particle physics on another hand, as physics undergraduate students are hardly exposed to this field, given the currently applied study plans and curricula. These goals can be achieved by disseminating current scientific research to the public, propagating scientific culture by the help of modern means such as blogging and social media, as well as working towards including particle physics in future curricula at college and high school levels.

My outreach activities include but are not limited to:

- Giving lectures and guiding virtual visits to the ATLAS Control Room at CERN, as part of the ICTP Physics Without Frontiers masterclasses in particle physics, held in 2015, 2016 and 2017 in a few Palestinian universities.
- Moderating video conferences between high school students from various countries (mainly European) and CERN as part of the International Masterclasses held in 2015, 2016 and 2017. [🔗](#)

Conferences, Schools and Workshops

- Feb, 24 - DAAD DIES ProGRANT Proposal Writing for Research Grants Program, Ramallah, Palestine. [↗](#)
Feb, 28, 2020
- Aug, 5 - The Sixth Palestinian Conference on Modern Trends in Mathematics and Physics, PCMTMP-VI,
Aug, 8, 2018 Palestine Technical University-Kadoorie, Tulkarm, Palestine. Talk: Commissioning of the Pixel
Detector after the IBL Insertion, and Search for SuperSymmetric Particles with Leptons in the Final
State.
- Jul, 31 - The Fifth Palestinian Conference on Modern Trends in Mathematics and Physics, PCMTMP-V, Arab
Aug, 2, 2016 American University, Jenin, Palestine. Talk: Commissioning of the Pixel Detector after the IBL
Insertion. [↗](#)
- May, 2 - Doctoral School (Ecole Doctoral) Scientific Days, Aix-Marseille University, Marseille, France. Talk:
3, 2016 Commissioning of the ATLAS Pixel Detector after the IBL Insertion, and Search for SuperSymmetric
Particles with 2 Same-sign or Three Leptons Channel.
- May, 30 - The fifth IN2P3 School of Statistics (SOS), Autrans, Grenoble, France. [↗](#)
June, 3, 2016
- Nov, 24 - ATLAS Physics France Workshop 2014, Le Puy-en-Velay, France. [↗](#)
26, 2014
- Jun - Series of lectures within the CERN Summer Program, CERN, Geneva, Switzerland.
Aug, 2014
- Sep, 3 - **16th** JCNS Laboratory Course-Neutron Scattering 2012: Organized by Forschungszentrum Jülich in
14, 2012 cooperation with RWTH Aachen and WWU Münster. Jülich/Garching-Germany. [↗](#)

Honors and Awards

- 2014-2017 The Sharing Knowledge Foundation (SKF) Scholarship supporting my doctoral student contract with CERN.
- 2010-2013 Teaching Assistant Scholarship from the Department of Physics at Birzeit University.
- 2013 Partial financial support from the Division of Basic and Engineering Sciences at UNESCO.
- 2006-2009 Dean's Honor List during my undergraduate study at Arab American University and graduating with an Excellent Standing.
- 2006-2009 The Palestinian Authority President Office Scholarship for the Tawjihi top ten students during my Bachelor study.
- 2006 The fourth-best student amongst the successful students in the General Secondary School Examination (Tawjihi), the Scientific Stream, on the national level.

Trainings

- Jul, 2021 - Aug, 2021 Swimming Course Level 1 (11 hrs). Trainer: Dr. Sameh Abu Farha. Arab American University, Jenin, Palestine.
- Jul, 12 - Jul, 14, 2021 Arabic Grammar Proofreader Training (18 hrs). Trainer: Mr. Aref Hijjawi. Media Development Center (MDC), Birzeit University, Birzeit, Palestine. [🔗](#)
- Dec, 2019 - Feb, 2020 Building the team of experts responsible for entrepreneurship training institutionalization in Palestine, offered by Ma'an Development Center (30 hrs). Trainer: a group of trainers. Arab American University, Jenin, Palestine.
- Jan, 2017 Making Engaging Presentations (21 hrs). Trainer: Mr. Patrick Duhoux. Thoiry, France.
- Nov, 2015 Public Speaking (14 hrs). Trainer: Mr. Alexandre Tremblay. Aix-Marseille University, Marseille, France.

Software Skills

- Programming Languages: C++, Fortran, Python
- Software Packages: ROOT and the ATLAS software (Athena), Mathematica, Matlab, Maple
- Applications: Microsoft Office, \LaTeX
- Operating Systems: Unix/Linux, Windows

Languages

Arabic	Mother Tongue (excellent expressive skills in creative and technical writing)
English	Fluent (TOEFL-iBT and IELTS)
French	Beginner

Publications

I am a coauthor of more than 320 publications (the full list can be found on [INSPIRE-HEP database](#)). A few selected publications are listed.

1. **Mahmoud I. Alstaty** and H. Abusara. Ground state deformation comparison between covariant density functional theory and proxy-SU(3) model in transitional nuclei. *Nuclear Physics A*, 1027:122504, 2022. [↗](#)
2. M. Aaboud, G. Aad, B. Abbott, K. Shaw, F. Djama, **M. I. Alstaty** and The ATLAS Collaboration. Search for supersymmetry in final states with two same-sign or three leptons and jets using 36 fb^{-1} of $\sqrt{s} = 13 \text{ TeV } pp$ collision data with the ATLAS detector. *JHEP*, 09:084, 2017. [↗](#)
3. M. Aaboud, G. Aad, B. Abbott, K. Shaw, F. Djama, **M. I. Alstaty** and The ATLAS Collaboration. Search for supersymmetry with two same-sign leptons or three leptons using 13.2 fb^{-1} of $\sqrt{s} = 13 \text{ TeV } pp$ collision data collected by the ATLAS detector. Technical Report ATLAS-CONF-2016-037, CERN, Geneva, Aug 2016. [↗](#)
4. M. Aaboud, G. Aad, B. Abbott, K. Shaw, F. Djama, **M. I. Alstaty** and The ATLAS Collaboration. Search for supersymmetry at $\sqrt{s} = 13 \text{ TeV}$ in final states with jets and two same-sign leptons or three leptons with the ATLAS detector. *Eur. Phys. J.*, C76(5):259, 2016. [↗](#)
5. M. Aaboud, G. Aad, B. Abbott, **M. I. Alstaty**, K. Shaw, F. Djama and The ATLAS Collaboration. Search for new phenomena in final states with large jet multiplicities and missing transverse momentum with ATLAS using $\sqrt{s} = 13 \text{ TeV}$ proton-proton collisions. *Phys. Lett.*, B757:334–355, 2016. [↗](#)
6. Arij Abdul-Rahman, **Mahmoud Alstaty**, and H R Jaqaman. Centre of mass motion and the mott transition in light nuclei. *Journal of Physics G: Nuclear and Particle Physics*, 42(5):055111, 2015. [↗](#)

References

References are available upon request.