Curriculum Vitae

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Hanan M. Sa'adeh

حنان محمود سعادة

Tel: +96265355000 Ext.22029 **E-mail:** Hanan.Saadeh@ju.edu.jo, ilovephysicsverymuch@yahoo.com
Webpage: http://eacademic.ju.edu.jo/Hanan.Saadeh/Pages/AboutMe.aspx

Personal Details

Date of Birth: 23 May 1980
Place of Birth: Kuwait
Sex: Female
Marital Status: Single
Nationality: Jordanian
Passport No.: Q137011

Academic Qualifications

- **Ph.D. degree in Physics/ Experimental Atomic Physics (Accelerator-Based), 2010.**
  The University of Jordan, Faculty of Graduate Studies, Amman, Jordan, 2002-2010.
  With an average of 3.95 out of 4, rating excellent and ranking first of the students of the Department of Physics.
  Dissertation Title: Correlation of Backscattered and Recoil Ions in Violent Ion-Atom Collisions by Coincident Rutherford Backscattering Spectrometry.
  Dissertation Advisors: Prof. Dr. Dia-Eddin Arafah and Dr. Rami M. Ali.

- **B.Sc. degree in Physics, 2002.**
  The University of Jordan, Faculty of Science, Department of Physics, Amman, Jordan, 1999-2002.
  With an average of 3.97 out of 4, rating excellent and ranking first of the students of the Department of Physics and the Faculty of Science as well.

- **General Secondary Education Certificate Examination, Scientific Stream, 1999.**
  Ministry of Education, Amman, Jordan, 1998-1999.
  With an average of 93.0%, rating excellent and scored in the 99th percentile (i.e., the top 1%) of the students of the scientific stream in Jordan.

Academic and Teaching Experience

- *Associate Professor of Physics* (Tenured as of March 2020), Department of Physics, School of Science, The University of Jordan, Amman, Jordan, June 2019 to Present.
- *Assistant Professor of Physics* (Tenure Track), Department of Physics, School of Science, The University of Jordan, Amman, Jordan, September 2013 to June 2019.
- *Assistant Professor of Physics*, Physics Department, Rabigh-Faculty of Science and Arts, King Abdulaziz University, Rabigh, Saudi Arabia, October 2010 to August 2013.
- *Part-time Lecturer*, Department of Physics, The University of Jordan, Amman, Jordan, September 2002 to January 2010.
- *Part-time Lecturer of Physics*, Islamic Community College, Zarqa, Jordan, 1st semester 2006/2007 and 1st semester 2007/2008.
- *Physics Teacher*, Khadija Bent Khuwailed Secondary School, Zarqa, Jordan, 2004 to 2005.

Administrative Experience

- *Jordan National Coordinator,* TC Projects of the International Atomic Energy Agency (IAEA) in ARASIA regional network, 2016 to Present.
- *Member*, served on many committees of administrative relevance at the University of Jordan, 2013 to Present.
- *Head of Physics*, Physics Department, Rabigh-Faculty of Sciences and Arts (Females Branch), King Abdulaziz University, Rabigh, Saudi Arabia, 2011 to 2013.

Research Experience

- *Research Fellow* (Full-time), working mainly at GasPhase beamline, Elettra-Sincrotrone Trieste, Basovizza, Italy, September 2021 to September 2023.
- *Research Fellow* (Full-time), working mainly at GasPhase beamline, Elettra-Sincrotrone Trieste, Basovizza, Italy, September 2018 to September 2019.
- *Research Fellow* (Short-term visits during summer semesters), working mainly at GasPhase beamline, Elettra-Sincrotrone Trieste, Basovizza, Italy, 2015 to Present.
- *Principal Researcher*, working mainly at PIXE-RBS beamline, The University of Jordan Van de Graaff Accelerator (JUVAC) Laboratory, Department of Physics, The University of Jordan, Amman, Jordan, 2013 to Present.
- *Experienced User* with good practice in JUVAC operation and vacuum techniques, JUVAC Laboratory, Department of Physics, The University of Jordan, Amman, Jordan, 2005 to Present.
- *PhD Candidate*, building the Coincident Rutherford Backscattering Spectrometry (CRBS) apparatus at JUVAC under the supervision of Dr. Dia-Eddin Arafah and Dr. Rami M. Ali, Atomic Physics Lab, Department of Physics, The University of Jordan, Amman, Jordan, 2005 to 2010.

Professional Memberships

- European Physical Society (EPS), Atomic, Molecular and Optical Physics Division (AMOPD), 2021 to Present.
- American Physical Society (APS), Division of Atomic, Molecular and Optical Physics (DAMOP), 2017 to Present.
- Friends of ICTP Association, 2017 to Present.
- SESAME Users Committee (SUC), Representative of Jordan, 2016 to Present.
- Jordanian SESAME Users' Network, 2006 to Present.
- Regional AdLS Usage & Strategic Plan Committee (USPC) for the Middle East region of *LAAAMP* (Lightsources for Africa, the Americas, Asia, and Middle East Project), 2020 to Present.
- Jordan's National Node for the International Day of Light (IDL), 2019 to Present.
- Aerosol Association in the Middle East and North Africa (AAMENA), 2016 to Present.

Scholarships, Fellowships, Honors, and Awards

23. **TRIL Fellowship at Elettra-Sincrotrone Trieste**, ICTP, Trieste, Italy, 1 September 2022 to 31 August 2023.

22. **One-Year Sabbatical Leave (2022-2023)**, The University of Jordan, academic year 2022/2023.

21. **One-Year Scientific Leave (2021-2022)**, in recognition of being awarded an international research fellowship in Atomic and Molecular Physics, The University of Jordan, academic year 2021/2022.

20. **TRIL Fellowship at Elettra-Sincrotrone Trieste**, ICTP, Trieste, Italy, 1 September 2021 to 31 August 2022.

19. **One-Year Scientific Leave (2018-2019)**, in recognition of being awarded an international research fellowship in Atomic and Molecular Physics, The University of Jordan, academic year 2018/2019.

18. **TRIL Fellowship at Elettra-Sincrotrone Trieste**, ICTP, Trieste, Italy, 1 September 2018 to 31 August 2019.

17. **Scholarship for Intensive Latin Course**, The University of Jordan and the Italian Institute for Classical Studies (IISC) in Italy, The University of Jordan, 30 June to 2 August 2018.

16. **TRIL Fellowship at Elettra-Sincrotrone Trieste**, ICTP, Trieste, Italy, 21 June to 20 August 2017.

15. **TRIL Fellowship at Elettra-Sincrotrone Trieste**, ICTP, Trieste, Italy, 8 July to 7 August 2016.

14. Nominated to attend the **66th Lindau Nobel Laureate Meeting,** The University of Jordan & COMSTECH, December 2015.

13. **TRIL Fellowship at Elettra-Sincrotrone Trieste**, ICTP, Trieste, Italy, 1 June to 29 August 2015.

12. **Grant for a Short Scientific Visit to LABEC Laboratory of INFN at Florence, Italy**, IAEA RAS/0/072 Project, February 2015.

11. **The 1st Position in Poster Presentation Contest**, First ICTP-NCP International College on Plasma Physics, NCP, Pakistan, November 2013.

10. **Grant for a Short Scientific Visit to ESRF (European Synchrotron Radiation Facility) at Grenoble, France**, SESAME and LinkSCEEM Project (SCORE Program), October 2013.

9. **Distinguished Poster Award**, Hands-On Research in Complex Systems School, Shanghai Jiao Tong University, China, June 2012.

8. Nominated for the **Best Ph.D. Dissertation Award in the Scientific Field**, Department of Physics, The University of Jordan, 2010.

7. **Teaching Scholarship**, The University of Jordan, Faculty of Graduate Studies, 2003 to 2010.

6. **Academic Distinction Scholarship**, The University of Jordan, Faculty of Graduate Studies, 2007.

5. Appeared on the **University's President's Honor List for Academic Distinction**, The University of Jordan, 2003.

4. **Scientific Distinction Award in Science**, The University of Jordan, July 2003.

3. **Scientific Distinction Award in Physics,** The University of Jordan, July 2003.

2. **Higher Education Grant for the Top Students in Physics Department**, Ministry of Higher Education and Scientific Research, Jordan, 2000.

1. **Higher Education Grant for the Top Students in Tawjihi Exam**, Ministry of Higher Education and Scientific Research, Jordan, 1999.

Research and Intellectual Interests

Exact Specialty and Research Expertise

Experimental Atomic and Molecular Physics (Accelerator-Based).

Research Interests

As an experimentalist, I do believe that there is no better place to enjoy physics than an accelerator laboratory. My research interests are centered around the design, development, and implementation of accelerator-based techniques to study the structure and dynamics of atoms and molecules during their interactions with charged particles (ion beams) or with electromagnetic radiation (photon beams). My research motivation ranges from interest in understanding fundamental features of matter on atomic scale, such as the electronic structure and charge-state distributions, to application-oriented studies such as using ion beam analysis (IBA) techniques to analyze samples of environmental relevance or using synchrotron radiation (SR) techniques to investigate gas-phase molecules of biological or pharmacological significance.

In brief lines, I am particularly working in the following research themes:

- Scientific instrumentation: design, development, implementation, and optimization of accelerator-based techniques for fundamental research and/or interdisciplinary applications.
- Interaction of ions with matter: using ion beams to probe the sample composition or charge state distributions.
- Interaction of light with matter: using synchrotron radiation to probe the structure and/or fragmentation mechanisms of small gas-phase molecules.

Accelerators and Sources Used

- Single-Ended Van de Graaff Accelerator.
- Tandetron (Tandem Van de Graaff Accelerator).
- Synchrotron Light Source (Storage Ring).
- Helium Gas-Discharge Lamp.

Experimental Techniques Used

- Coincident Rutherford Backscattering Spectrometry (CRBS).
- Rutherford Backscattering Spectrometry (RBS).
- Particle-Induced X-ray Emission (PIXE).
- Time-Of-Flight (TOF) Mass Spectrometry.
- Photo-Electron Photo-Ion COincidence (PEPICO).
- Negative-Ion Positive-Ion COincidence (NIPICO).
- Vacuum Ultraviolet (VUV) Spectroscopy.
- X-Ray Photoelectron Spectroscopy (XPS).
- Near-Edge X-ray Absorption Fine Structure (NEXAFS).

Other Scientific and Intellectual Interests

- Physics Education, Mentorship, and Supervision.
- Physics Demonstrations and Experimentation.
- Science Popularization and Outreach.
- History of Science and Biography of Scientists.

Publications

15. **Spectroscopic and Quantum Mechanical Study of a Scavenger Molecule: N,N-diethylhydroxylamine.**
G. Salvitti, E. Pizzano, F. Baroncelli, S. Melandri, L. Evangelisti, F. Negri, M. Coreno, K. C. Prince, A. Ciavardini, **H. Sa'adeh**, M. Pori, M. Mazzacurati, A. Maris.
Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 281 (2022), 121555.
https://doi.org/10.1016/j.saa.2022.121555

14. **Photoemission and Photofragmentation of Butanoic, Hexanoic and Octanoic Acids in the Gas Phase.**
H. Sa'adeh, M. Masic, P. Bolognesi, R. Richter, and K. C. Prince.
Journal of Electron Spectroscopy and Related Phenomena 256 (2022), 147172.
https://doi.org/10.1016/j.elspec.2022.147172

13. **Positional and Conformational Isomerism in Hydroxybenzoic Acid: A Core-Level Study and Comparison with Phenol and Benzoic Acid.**
A. Hill, **H. Sa'adeh**, D. Cameron, F. Wang, A. B. Trofimov, E. Y. Larionova, R. Richter, and K. C. Prince.
Journal of Physical Chemistry A 125 (2021), 9877-9891.
https://doi.org/10.1021/acs.jpca.1c07523

12. **Carbon and Nitrogen K-Edge NEXAFS Spectra of Indole, 2,3-Dihydro-7-azaindole, and 3-Formylindole.**
A. Ponzi, E. Bernes, D. Toffoli, G. Fronzoni, C. Callegari, A. Ciavardini, M. Di Fraia, R. Richter, K. C. Prince, **H. Sa'adeh**, M. Devetta, D. Faccialà, C. Vozzi, L. Avaldi, P. Bolognesi, M. Carmen Castrovilli, D. Catone, M. Coreno, and O. Plekan.
Journal of Physical Chemistry A 125 (2021), 4160-4172.
https://doi.org/10.1021/acs.jpca.1c02570

11. **Chlorination and Tautomerism: A Computational and UPS/XPS Study of 2-hydroxypyridine≒ 2-pyridone Equilibrium.**
S. Melandri, L. Evangelisti, S. Canola, **H. Sa'adeh**, C. Calabrese, M. Coreno, C. Grazioli, K. C. Prince, F. Negri, and A. Maris.
Physical Chemistry Chemical Physics 22 (2020) 13440-13455.
https://doi.org/10.1039/D0CP02304C

10. **Experimental and Theoretical Soft X-ray Study of Nicotine and Related Compounds.**
H. Sa'adeh, F. M. Backler, F. Wang, S. Piccirillo, A. Ciavardini, R. Richter, M. Coreno, and K. C. Prince.
Journal of Physical Chemistry A 124 (2020) 4025-4035.
https://doi.org/10.1021/acs.jpca.9b11586

9. **Experimental and Theoretical Photoemission Study of Indole and Its Derivatives in the Gas Phase.**
O. Plekan, **H. Sa'adeh**, A. Ciavardini, C. Callegari, G. Cautero, C. Dri, M. Di Fraia, K. C. Prince, R. Richter, R. Sergo, L. Stebel, M. Devetta, D. Facciala, C. Vozzi, L. Avaldi, P. Bolognesi, M. C. Castrovilli, D. Catone, M. Coreno, F. Zuccaro, E. Bernes, G. Fronzoni, D. Toffoli, and A. Ponzi.
Journal of Physical Chemistry A 124 (2020) 4115−4127.
https://doi.org/10.1021/acs.jpca.0c02719

8. **An Assessment of the Impact of Construction Work on Fine Particulate Matter in The University of Jordan: A PIXE Study.**
H. Sa'adeh S. Aburugia, and M. Chiari.
X-Ray Spectrometry 48 (2019) 569-578.
https://doi.org/10.1002/xrs.3105

7. **Atmospheric Aerosol Analysis at the PIXE–RBS Beamline in the University of Jordan Van de Graaff Accelerator (JUVAC).**
H. Sa'adeh and M. Chiari.
X-Ray Spectrometry 48 (2019) 188-194.
https://doi.org/10.1002/xrs.3014

6. **Dissociation Kinetics of Excited Ions: PEPICO Measurements of $Os_3(CO)_{12}$-The 7-35 eV Single Ionization Binding Energy Region.**
O. Schalk, I. Josefsson, T. Geng, R. Richter, **H. Sa'adeh**, R.D. Thomas, and M. Mucke.
Journal of Chemical Physics 148 (2018) 084301.
https://doi.org/10.1063/1.5018719

5. **Communication: "Position" Does Matter: The Photofragmentation of the Nitroimidazole Isomers.**
P. Bolognesi, A. R. Casavola, A. Cartoni, R. Richter, P. Markus, S. Borocci, J. Chiarinelli, S. Tosic, **H. Sa'adeh**, M. Masic, B. P. Marinkovic, K. C. Prince, and L. Avaldi.
Journal of Chemical Physics 145 (2016) 191102.
https://doi.org/10.1063/1.4967770

4. **Evaluation and Mapping of PM2.5 Atmospheric Aerosols in ARASIA Region Using PIXE and Gravimetric Measurements.**
M. Roumie, M. Chiari, A. Srour, **H. Sa'adeh**, A. Reslan, M. Sultan, M. Ahmad, G. Calzolai, S. Nava, Th. Zubaidi, M.S. Rihawy, T. Hussein, D.-E. Arafah, A.G. Karydas, A. Simon, and B. Nsouli.
Nuclear Instruments and Methods in Physics Research Section B 371 (2016) 381-386.
https://doi.org/10.1016/j.nimb.2015.12.034

3. **Electromagnetic Reduced Transition Properties of the Ground State Band of Even–Even $^{102\text{-}106}$Pd Isotopes by Means of Interacting Boson Model-I.**
I. Hossain, M. A. Saeed, N. N. A. M. B. Ghani, **H. Sa'adeh**, M. Hussein and H. Y. Abdullah.
Indian Journal of Physics 88 (1) (2014) 5-9.
https://doi.org/10.1007/s12648-013-0374-5

2. **Charge-State Distributions of Energetic ^{4}He Ions Backscattered from Kr Gas Target.**
H. Sa'adeh, R. Ali, and D.-E. Arafah.
Nuclear Instruments and Methods in Physics Research Section B 271 (2012) 33-38.
https://doi.org/10.1016/j.nimb.2011.10.013

1. **Coincident Rutherford Backscattering Spectrometry: A Novel Technique for Measuring Charge State Distributions in Violent Ion-Atom Collisions.**
H. Sa'adeh, R. Ali, and D.-E. Arafah.
Nuclear Instruments and Methods in Physics Research Section B 269 (2011) 2111-2116.
https://doi.org/10.1016/j.nimb.2011.06.020

Funded Research Projects

6. *Project Counterpart* and *Principal Investigator* in RAS0078 Project **"Studying Characterizations, Source Apportionment of Air Pollution, and Long-Range Transport within the ARASIA Regional Network"**, coordinated and funded by the International Atomic Energy Agency (IAEA), Austria, January 2019 to Present. Other participants: Sara Aburugia (M.Sc. Student) and Ruba Hasan (B.Sc. Student).

5. *Project Counterpart* and *Principal Investigator* in RAS0076 Project "**Investigating Atmospheric Particulate Matter and Pollution Source Contributions in Urban Environments Using Nuclear Analytical Techniques (ARASIA)"**, coordinated and funded by the International Atomic Energy Agency (IAEA), Austria, January 2016 to December 2018. Other participants: Dr. Dia-Eddin Arafah and Sara Aburugia (M.Sc. Student).

4. *Principal Investigator* or *Co-Investigator* at the GasPhase photoemission beamline of Elettra-Sincrotrone Trieste, carrying out experiments on **"Electron Spectroscopy and Fragmentation Mechanisms of Small Gas Phase Molecules Using Synchrotron Light"**, funded by the Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy, jointly with Elettra under the ICTP TRIL Fellowship, June 2015 to Present. Other participants: Members of Elettra's GasPhase beamline.

3. *Principal Investigator* in RAS0072 Project "**Evaluating and Mapping Air Pollutants Using Nuclear Analytical Techniques (ARASIA)"**, coordinated and funded by the International Atomic Energy Agency (IAEA), Austria, November 2013 to December 2015. Other participants: Dr. Dia-Eddin Arafah (Project Counterpart) and Dr. Rami Ali.

2. *Participant* in the Project of "**Thermoluminescence Response of Doped Materials with Rare Earth Elements**", funded by The University of Jordan (Deanship of Scientific Research), Jordan, February 2015 to February 2016. Other participants: Dr. Dia-Eddin Arafah (Principal Investigator).

1. *Principal Investigator* (*PhD Candidate*) in the Project of **"Measurements of Charge State Distributions of Scattered and Recoil Ions in Violent Ion-Atom Collisions by Coincident Rutherford Backscattering Spectrometry"**, funded by The University of Jordan (Deanship of Scientific Research, Postgraduate Student Research Fund), Jordan, December 2006 to December 2007. Other participants: Dr. Dia-Eddin Arafah (PhD advisor) and Dr. Rami M. Ali (PhD co-advisor).

Funded Undergraduate Research Projects

3. Rand Al-Far (Physics Student), **"Implementation of the Initial Stage of Ibn Al-Haytham's Camera Obscura at UJ: Simple Camera Obscura (Fixed Image)"**, funded by The University of Jordan (Deanship of Scientific Research, Undergraduate Student Research Fund), Jordan, October 2017 to August 2018. Other participants: LAMBDA Physics Group.

2. Hanin Sharif (Electrical Engineering Student), **"Ibn Al-Haytham's Camera Obscura at UJ, Final Stage: Upgraded Camera Obscura (Multiple Images)"**, funded by The University of Jordan (Deanship of Scientific Research, Undergraduate Student Research Fund), Jordan, January 2017 to August 2018. Other participants: LAMBDA Physics Group.

1. Islam M. Bazlamit (Physics Student), **"Ibn Al-Haytham's Camera Obscura at UJ, Initial Stage: Simple Camera Obscura (Fixed Image)"**, funded by The University of Jordan (Deanship of Scientific Research, Undergraduate Student Research Fund), Jordan, December 2016 to June 2017. Other participants: LAMBDA Physics Group.

Thesis/Dissertation Supervision

1. Sara M. Aburugia, **M.Sc. Thesis** "PIXE Characterization of Fine Particulate Matter Emitted from Construction Works at The University of Jordan: A Source Apportionment Study by Positive Matrix Factorization (PMF)", The University of Jordan, Jordan, 26 December 2019. (*Single Supervisor*)

Thesis/Dissertation Examination Committees

4. Mamogo Adolphina Masenya, **Ph.D. Dissertation** "A Study on Si and SiC Nanostructures Induced by Thermal Solid State Dewetting and by Ion Irradiation", University of the Western Cape, South Africa, 1 March 2022. (*External Examiner*)

3. Olakunle Oluwaleye, **Ph.D. Dissertation** "Ion Beam Modification of Transparent Conducting Oxide (TCO) Thin Films by keV Ions", The University of South Africa, South Africa, 8 September 2022. (*External Examiner*)

2. Hameda Ali Abrass, **Ph.D. Dissertation** "Cobalt Silicide Formation through a Diffusion Barrier", The University of Pretoria, South Africa, 22 September 2015. (*External Examiner*)

1. Sana'a Al-rajoub, **M.Sc. Thesis** "Theoretical Investigations of the Structural, Electronic, and Optical Properties of HgX (X= S, Se, Te) Binary and Ternary Alloys: First Principles Calculations", The University of Jordan, Jordan, 7 May 2015.

Undergraduate Senior Research Project Supervision

Over the past several years, I have supervised around 40 undergraduate senior physics students in different subjects of physics. Every student submitted a written report (mini-thesis), presented an oral presentation, and his/her work was discussed and evaluated by a panel of faculty members with expertise close to the subject of the project. Here is a selected list.

14. Islam M. Bazlamit, "The First Ten Energy Levels of Hydrogen Atom Under Weak Zeeman Effect", The University of Jordan, Jordan, May 2016.
13. Bayan N. Taha, "Signal Transmission over Air Core Optical Fiber", The University of Jordan, Jordan, May 2016.
12. Lina A. Oqailan, "Left-Handed Bulk Metamaterial Operating in the Terahertz Frequency Range", The University of Jordan, Jordan, May 2016.
11. Bayan I. Jaber, "Controlling Output Power Stability of Half-External He-Ne Laser Cavity Using Cat's Eye as Reflecting Mirror", The University of Jordan, Jordan, May 2016.
10. Sara S. Qubbaj, "CdS Quantum Dot Sensitized Solar Cells", The University of Jordan, Jordan, May 2016.
9. Sana'a K. Alfar, "Double Junction HTS YBCO Superconducting Quantum Interference Device", The University of Jordan, Jordan, May 2016.
8. Mohammad A. Al-Zuraiqi, "The Definition of Time", The University of Jordan, Jordan, December 2014.
7. Hanan A. Al-momani, "Electromagnetic Railgun for Future Wars", The University of Jordan, Jordan, December 2014.
6. Raghad M. Rababah, "Coherent Population Trapping for MEMS Atomic Clocks", The University of Jordan, Jordan, December 2014.
5. Afaf A. Abukishk, "Neutrino and Super-Kamiokande Experiment", The University of Jordan, Jordan, December 2014.

4. Jomana M. Al-awadi, “Fundamentals of Higgs Boson”, The University of Jordan, Jordan, December 2014.
3. Mohammed J. Karaki, “Quantum Field-Theoretic Derivation of the Differential Cross Sections for $\mu-e$ and $\gamma-e$ Elastic Collisions”, The University of Jordan, Jordan, December 2014.
2. Sara M. Aburugia, “Quantum Teleportation and Entangled States”, The University of Jordan, Jordan, December 2014.
1. Rajaa J. Ismail, “InGaN/AlGaN Blue Light-Emitting Diodes”, The University of Jordan, Jordan, December 2014.

Professional Services: Referee, Evaluator, Trainer, Consultant, and Recommender

- *Jury Member* for the 2021 Abdul Hameed Shoman Prize for Arab Researchers (The most prestigious Arab award, concerned with scientific research and honoring Arab researchers since 1982) in the field of Basic Sciences, Abdul Hameed Shoman Foundation (AHSF), Amman, Jordan, September 2021.
- International *Reviewer* to evaluate the quality, impact and standing of a research portfolio in the field of "Experimental Condensed Matter Physics; Ion Beam Physics; Nanoscale Materials; Radiation and Health Physics", South Africa’s National Research Foundation (NRF), Pretoria, South Africa, September 2021.
- External *Reviewer* for proposals submitted to the 2019 FONDECYT Initiation into Research, The National Fund for Scientific and Technological Development (FONDECYT), The Chilean National Commission for Scientific and Technological Research (CONICYT), Santiago, Chile, June 2019.
- *Referee* for Nuclear Instruments and Methods in Physics Research Section B (NIMB), 2019.
- *Referee* for Jordan Journal of Physics (JJP), since 2014.
- *Trainer*, “Training Fellowship at The University of Jordan on Air Pollution Analysis”, funded by the International Atomic Energy Agency (IAEA), The University of Jordan, 1 December 2019 to 30 January 2020.
- *Trainer*, “Regional Training Course on the Use of IBA Techniques to Analyze Atmospheric Aerosols at JUVAC”, a specialized workshop funded by the International Atomic Energy Agency (IAEA), The University of Jordan, 20-24 November 2016.
- *Evaluator* for Physics Projects, Jordan Science Fair 2018, organized by Innovation for Creativity Development Association (ICDA), Amman, Jordan, 28 April 2018.
- *Evaluator* for Students' Presentations in the 3rd workshop of Science Students Research Club (SSRC), School of Science, The University of Jordan, Jordan, 2 September 2015.
- Physics *Consultant* and *Recommender* for Andromeda Team (Students of Islamic Educational College, Amman, Jordan) in their participation in the Formula-1 School Students Competition, April 2018.
- Physics *Consultant* for Green Light Team (Students of Islamic Educational College, Amman, Jordan) in their participation in the Competition of Investigation in Science Education, held by Jordan Society for Scientific Research, December 2015.
- *Recommender* for many Physics and Engineering students and graduates of the University of Jordan for regional and international internships and scholarships.

Academic Committees at The University of Jordan

School of Science Committees

- *Member*, Representative of the Department of Physics, Committee of Preparing a Report on the Achievements (1999-2020) and Future Vision (2020-2050) of the School of Science, 2020/2021.
- *Member*, Representative of the Department of Physics, Board of the School of Science, 2016/2017.
- *Member*, Academic Quality and Development Committee, 2016/2017.
- *Member*, Committee of Inquiry for Students Violations, 2013/2014, 2014/2015, & 2020/2021.

Physics Departmental Committees

- *Founder and Supervisor*, LAMBDA Physics Group, 2015 to Present. (http://science.ju.edu.jo/en/lambda)
- *Member*, PhD Qualifying Exam Committee, 2019/2020.
- *Member*, Graduate Studies Committee, 2019/2020 & 2020/2021.
- *Academic Mentor*, Undergraduate Physics Program, 2014/2015 to Present.
- *Coordinator*, Committees for Freshman Physics Courses, 2013 to Present.
- *Member*, Scientific Research Committee, 2013/2014, 2014/2015, 2015/2016, 2016/2017, 2017/2018, 2019/2020, & 2020/2021.
- *Member*, Faculty Members Appointment and Promotion Committee, 2014/2015, 2015/2016, 2017/2018, 2019/2020, & 2020/2021.
- *Member*, Study Plan Committee, 2015/2016, 2016/2017, 2017/2018, 2019/2020, & 2020/2021.
- *Member*, Committee of Preparing the Annual Report for the Academic Programs at the Department of Physics, 2015/2016.

Courses Taught at The University of Jordan

Post-Graduate

- M.Sc.: Atomic and Molecular Physics-1 (0352762), Computational Physics (0352752), Special Topics in Physics "Ion Beam Analysis Techniques" (0352792).

Undergraduate

- 4th year: Atomic and Molecular Physics (0302462), Software Packages in Physics (0302481), Research Project and Methods of Teaching Physics (0332499), Methodologies of Scientific Research (0302490).
- 3rd year: Quantum Mechanics-2 (0342461), Theory of Special Relativity (0302360).
- 2nd year: Quantum Mechanics-1 (0332361), Optics-1 (0302221), Modern Physics (0302261).
- Freshman Courses: General Physics-1 (0302101), General Physics-2 (0302102), General Physics for Biological Sciences Students (0342103), Physics for Medicine and Dentistry (0342105), Practical Physics-1 (0302111), Practical Physics-2 (0302112), Practical Physics for Biological Sciences Students (0302113), Practical Physics for Dentistry Students (0302115), Remedial Physics (0302099).
- University Requirements: Campus Life and Ethics (3400105).

Organization of Scientific Meetings and Extracurricular Activities

In addition to organizing the following meetings and activities as a *principal organizer*, I also secured private, national, or international funding. This is a selected list.

14. "From the University of Jordan (UJ) to the World: Light Up Your Path!", an online panel discussion held to discuss some UJ physics alumni success stories, starting from the moment they joined UJ until they got well-deserved scholarships abroad. It was held in celebrating the International Day of Light 2022 (IDL2022), in coincidence with the 60th anniversary of the founding of the University of Jordan, the first provider of university education in Jordan (dating back to 2 September 1962), The University of Jordan, 3 September 2022.
13. "Single Photon Experiments Everyone Can Do in a Physics Department", an online talk delivered by Prof. Muhammad Sabieh Anwar (LUMS, Pakistan), in celebrating the International Day of Light 2022 (IDL2022), The University of Jordan, 4 June 2022.
12. "Enjoy Special Relativity on the Carpet of Light!", an online panel discussion held to discuss the scientific story "The Carpet of Light" with physicists and physics lovers, in celebrating the International Day of Light 2021 (IDL2021), The University of Jordan, 30 May 2021.
11. "Marie Curie Day 2017 at The University of Jordan", a public event held as part of the worldwide celebration of the 150th birth anniversary of the double-Nobel laureate "Marie Curie", The University of Jordan, 12 December 2017.
10. "Smart Physics with Smart Video and Motion Sensors", a motivational talk delivered by Dr. Muhammad Sabieh Anwar (LUMS, Pakistan), The University of Jordan, 12 November 2017.
9. "Regional Training Course on the Use of IBA Techniques to Analyze Atmospheric Aerosols at JUVAC", a specialized workshop funded by the International Atomic Energy Agency (IAEA), The University of Jordan, 20-24 November 2016.
8. "Living like a Photon", a public event held as part of the worldwide celebration of the 2016 Day of Photonics "21 October", The University of Jordan, 27 October 2016.
7. "Special Relativity in the Story of "The Carpet of Light" by Zainab Al-Asfar", a panel discussion from a scientific and technical perspective, Department of Physics, The University of Jordan, 29 March 2016.
6. "Light Challenge", an artistic competition inspired by the 2015 International Year of Light, The University of Jordan, 3 December 2015 to 3 January 2016.
5. "Shining Light on the Pioneering Arab Scientist: Ibn Al-Haytham, A Scientist for All Seasons", a public seminar delivered by Prof. Humam Ghassib, Department of Physics, The University of Jordan, 22 December 2015.
4. "Bright Tuesday", an open day of optics and light-based experiments, Ibn Al-Haytham Lab, Department of Physics, The University of Jordan, 8 & 22 December 2015.
3. "Shining Light on a Teacher of Optics", an open interview with Prof. Ma'rof Al-Haj, The University of Jordan, 15 December 2015.
2. "Light Up with Physics", kicking-off a series of events and activities held as part of the worldwide celebration of the 2015 International Year of Light and Light-Based Technologies, The University of Jordan, 3 December 2015.
1. Guided scientific tours for Physics and Engineering students (and sometimes school students) to research facilities in Jordan; mostly to JUVAC, but also to other facilities (e.g., SESAME), since 2013.

Participation in Conferences, Workshops, and Meetings

58. The Seventh Palestinian Conference on Modern Trends in Mathematics and Physics (PCMTMP-VII), 30 July-1 August 2022, Birzeit University, Birzeit, Palestine. (*Invited Talk*)
57. The 14th European Conference on Accelerators in Applied Research and Technology (ECAART14), 17-23 July 2022, Sibiu, Romania. (*Oral Presentation*)
56. IUPAP Centenary Symposium, 11-13 July 2022, ICTP, Trieste, Italy.
55. The 1st International Conference on Accelerators for Research and Sustainable Development: From Good Practices Towards Socioeconomic Impact (AccConf2022), 23-27 May 2022, Vienna, Austria. (*Poster Presentation*)
54. The 32nd International Conference on Photonic, Electronic and Atomic Collisions (ViCPEAC 2021), 20-23 July 2021, Virtual Conference Platform (Pheedloop and GatherTown).
53. Careers for Women in Accelerator Science and Technology, 24 February 2021, IAEA Webinar (Online).
52. Quantum Computing for Beginners, Online Lecture Series by Dr M. Sabieh Anwar, Khwarizmi Science Society (KSS), Pakistan, 19 December 2020 to 10 January 2021, Online (Zoom).
51. Workshop on Hands-on Operation and Maintenance of Electrostatic Accelerators, 9-13 December 2019, IRB, Zagreb, Croatia. (*Oral Presentation*)
50. ESUO (European Synchrotron and FEL User Organization) Regional Meeting 2019, jointly held with the 17th SESAME Users Meeting, 1 Dec 2019, SESAME, Allan, Salt, Jordan. (*Invited Talk*)
49. HERCULES School at SESAME, 26 October-7 November 2019, SESAME, Allan, Salt, Jordan.
48. The 24th International conference on Ion Beam Analysis (IBA 2019), 13-18 October 2019, Antibes, France. (*Poster Presentation*)
47. The XXXIst International Conference on Photonic, Electronic, and Atomic Collisions (ICPEAC 2019), 23-30 July 2019, Deauville, France. (*Poster Presentation*)
46. ARASIA Regional Workshop to Review/Update Procedures and Strategy for Atmospheric Aerosol Sampling and Analyses, under IAEA TC Project RAS/0/078, 13-17 May 2019, IAEA, Vienna, Austria. (*Oral Presentation & Meeting Chair*)
45. The 16th International Conference on Particle Induced X-ray Emission (PIXE 2019), 24-29 March 2019, Caldas da Rainha, Portugal. (*Oral Presentation*)
44. 16th SESAME Users' Meeting, 15-16 December 2018, Harir Palace Hotel, Amman, Jordan.
43. Opportunities for Time-REsolved Experiments at new Synchrotron radiation facilities (TREES), 4-5 December 2018, ICTP, Trieste, Italy.
42. Science and Applications of Synchrotron radiation 10 to 20 Years from Today (SciSyn X), 3-4 December 2018, ICTP, Trieste, Italy.
41. 25th Conference on Application of Accelerators in Research and Industry (CAARI 2018), 12-17 August 2018, Grapevine, Texas, USA. (*Invited Talk*)
40. Palestinian Conference on Modern Trends in Mathematics and Physics VI (PCMTMP-VI), 5-9 August 2018, Palestine Technical University-Khadoorei, Tulkarm, Palestine.
(*Oral Presentation & Session Chair*)
39. Second Coordination Meeting of the Regional Project RAS/0/076, 2-6 July 2018, IAEA, Vienna, Austria. (*Oral Presentation*)
38. European Conference on X-Ray Spectrometry (EXRS 2018), 24-29 June 2018, Ljubljana, Slovenia. (*Poster Presentation*)

37. 15th SESAME Users' Meeting, 18-19 December 2017, Gerasa Hotel, Amman, Jordan.

36. The World Science Forum 2017 JORDAN, 7-11 November 2017, King Hussein Bin Talal Convention Centre, Dead Sea, Jordan.

35. The 23rd International Conference on Ion Beam Analysis (IBA 2017), 8-13 October 2017, Fudan University, Shanghai, China. (*Oral & Poster Presentations*)

34. Opening of SESAME (Synchrotron-light for Experimental Science and Applications in the Middle East) under the patronage of His Majesty King Abdullah II, 16 May 2017, Allan, Jordan.

33. Regional Workshop on Project Review Progress and Database Development, under IAEA TC Project RAS/0/076, 24-28 April 2017, IAEA, Vienna, Austria. (*Oral Presentation*)

32. UBCC's Higher Education Content Forum 2017, organized by UBCC (University Book Centers Company), 11 April 2017, Landmark Hotel, Amman, Jordan.

31. The 15th International Conference on Particle Induced X-ray Emission (PIXE 2017), 2-7 April 2017, Split, Croatia. (*Oral Presentation*)

30. Fourth Regional Lab Immersion Program (RLIP 2016), 17-22 December 2016, LUMS, Lahore, Pakistan. (*Invited Talk*)

29. 14th SESAME Users' Meeting, 3-4 December 2016, Days Inn. Hotel and Suites, Amman, Jordan.

28. Regional Meeting to Review/Update Procedures and Strategy for Atmospheric Aerosol Sampling and Analyses & Interpretation, 4-8 April 2016, LAEC, Beirut, Lebanon. (*Oral Presentation & Meeting Chair*)

27. 13th SESAME Users' Meeting, 25-26 November 2015, Days Inn. Hotel and Suites, Amman, Jordan.

26. The 22nd International Conference on Ion Beam Analysis (IBA 2015), 14-19 June 2015, Opatija, Croatia. (*Oral & Poster Presentations*)

25. Regional-Coordination-Review Meeting and Workshop on Evaluating and Mapping Air Pollutants Using Nuclear Analytical Techniques, 19-23 April 2015, AUS, Sharjah, United Arab Emirates. (*Oral Presentation*)

24. First Swedish-Jordanian Workshop on Science and Research Using Synchrotron Radiation, 25-29 January 2015, The Hashemite University, Zarqa, Jordan.

23. ICTP-NCP School on LHC Physics, 17-28 November 2014, NCP, Islamabad, Pakistan. (*Oral Presentation*)

22. Fourth SESAME-LinkSCEEM Summer School on Synchrotron Radiation and High-Performance Computing Applications, 15-17 June 2014, Ibis Hotel, Amman, Jordan.

21. Regional Workshop to Establish Strategy and Procedures for Atmospheric Aerosol Sampling, Analyses and Interpretation of the Results, 7-10 April 2014, IAEA, Vienna, Austria. (*Oral Presentation*)

20. International Scientific Spring (ISS-2014), 10-14 March 2014, NCP, Islamabad, Pakistan. (*Oral Presentation*)

19. 11th SESAME Users' Meeting, 20-22 November 2013, Days Inn. Hotel and Suites, Amman, Jordan. (*Poster Presentation*)

18. First ICTP-NCP International College on Plasma Physics, 11-15 November 2013, NCP, Islamabad, Pakistan. (*Poster Presentation*)

17. Advanced X-Ray Tomography Workshop: Experiment, Modeling, and Algorithms Jointed the Scientific Kick-off Meeting of the EXTREMA COST Action, 10-11 October 2013, ESRF, Grenoble, France.

16. Third SESAME-LinkSCEEM Summer School on Synchrotron Radiation and High-Performance Computing Applications, 8-10 September 2013, SESAME, Allan, Jordan.

15. 2nd International Henry Moseley School and Workshop on X-Ray Science, 13-22 June 2013, ITAP, Turunç/Marmaris, Turkey. (*Oral Presentation*)
14. Joint ICTP-TWAS Workshop on Portable X-ray Analytical Instruments for Cultural Heritage, 29 April to 3 May 2013, ICTP, Trieste, Italy.
13. Third LinkSCEEM Cross-sectional HPC Workshop, 11-15 November 2012, Cairo University and the American University in Cairo, Cairo, Egypt.
12. 10th SESAME Users' Meeting, 7-9 November 2012, Days Inn. Hotel and Suites, Amman, Jordan. (*Poster Presentation*)
11. Second SESAME-LinkSCEEM Summer School on Synchrotron Radiation and High-Performance Computing Applications, 11-13 September 2012, SESAME, Allan, Jordan.
10. Palestinian Conference on Modern Trends in Mathematics and Physics III (PCMTMP-III), 16-18 July 2012, Palestine Polytechnic University, Hebron, Palestine. (*Oral Presentation*)
9. Hands-On Research in Complex Systems School, 17-29 June 2012, Shanghai Jiao Tong University, Shanghai, China. (*Poster & Snapshot Presentations*)
8. Fifth Saudi Science Conference, 16-18 April 2012, Umm Al Qura University, Makkah, Saudi Arabia.
7. Workshop on Nanotechnology-Based Renewable Energy, 18-19 February 2012, Center of Nanotechnology, King Abdulaziz University, Jeddah, Saudi Arabia.
6. SESAME-JSPS School Jointed 9th SESAME Users' Meeting, 12-16 November 2011, Days Inn. Hotel and Suites, Amman, Jordan. (*Oral Presentation*)
5. Third International Symposiums on Nuclear Energy (ISNE-10), 15-17 December 2010, Le Royal Amman Hotel, Amman, Jordan.
4. Joint ICTP/IAEA Workshop on Nuclear Data for Science and Technology: Analytical Applications, 8-12 November 2010, ICTP, Trieste, Italy.
3. Palestinian Conference on Modern Trends in Mathematics and Physics II (PCMTMP-II), 2-4 August 2010, An-Najah National University, Nablus, Palestine. (*Oral Presentation*)
2. Joint ICTP/IAEA Workshop on Advanced Simulation and Modeling for Ion Beam Analysis, 23-27 February 2009, ICTP, Trieste, Italy.
1. Attended many of the SESAME Jordanian National Committee workshops, organized in Amman, Jordan over the years.

Computer Skills

- Operating System: Microsoft Windows, Apple Mac.
- Software: GUPIXWIN, Igor Pro, KeyCAD, Kmax, Mathematica, MatLab, Microsoft Office, Origin, PeakFit, WebPage Design, and others.

Languages

- Arabic: Mother tongue
- English: Excellent, both written and spoken.
- Italian: Absolute beginner.

References

1. **Dr. Dia-Eddin Arafah**
   Professor of Experimental Condensed Matter Physics
   The University of Jordan, Amman, Jordan.
   E-mail: darafah@ju.edu.jo, dia.arafah@yahoo.com
   Mobile: (+962) (77) 9927222

2. **Dr. Rami M. Ali**
   Professor of Experimental Atomic and Molecular Physics
   The University of Jordan, Amman, Jordan.
   E-mail: ramimali@ju.edu.jo, ramimali@yahoo.com
   Mobile: (+962) (79) 5306720

3. **Dr. Kevin C. Prince**
   Professor and Senior Principal Scientist
   Elettra-Sincrotrone Trieste, Basovizza, Trieste, Italy.
   E-mail: prince@elettra.eu
   Mobile: (+39) (335) 6949522

4. **Dr. Massimo Chiari**
   Senior Researcher
   INFN, Division of Florence, Florence, Italy.
   E-mail: chiari@fi.infn.it
   Mobile: (+39) (328) 6251113

5. **Dr. Chris Jeynes**
   Professorial Research Fellow
   University of Surrey Ion Beam Centre, Guildford, Surrey, United Kingdom.
   E-mail: c.jeynes@surrey.ac.uk
   Phone: (+44) (148) 3686090

6. **Dr. Muhammad Sabieh Anwar**
   Professor of Physics
   Lahore University of Management Sciences (LUMS), Lahore, Pakistan.
   E-mail: sabieh@lums.edu.pk, sabieh@gmail.com
   Mobile: (+92) (322) 4442272

7. **Dr. Giorgio Paolucci**
   Chief Scientific Officer
   Elettra-Sincrotrone Trieste, Basovizza, Trieste, Italy.
   E-mail: giorgio.paolucci@elettra.eu
   Mobile: (+39) (392) 4616981