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Professor of Experimental Nuclear Materials Physics
Department of Physics
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Personal Data

Date and Place of Birth	January 15, 1970 Qablan
Nationality	Jordanian
Marital Status	Married, with two children
Phone	Office: + 962 5 3530462 Ext.: 3705, 3700

Education

- **Ph.D. Experimental Nuclear Materials Physics**
University of Rajasthan, India (2001).
- **M.Sc. Physics**, Aligarh Muslim University, India (1994)
G. Project: laser and radiation Physics
Grade: First division.
- **B. Sc. Physics (Honor)**, Aligarh Muslim University, India (1992)
Grade: First division

Teaching Experience

- **Head, Department of Radiology and Nuclear medicine,**
Inaya Medical College, Riyadh- Saudi Arabia Sept. 17, 2013- Sept.1,2014
- **Al-Balqa' Applied University, Salt – Jordan** Nov. 12, 2012
Professor of Physics
- **Al-Balqa' Applied University, Salt – Jordan** Nov. 12, 2008- Nov. 12, 2012
Associate Professor of Physics
- **German Jordanian University, Amman-Jordan** Sep. 12,2010- Sep. 12,2011
(Part time)
- **German Jordanian University, Amman-Jordan** Sep. 12,2009- Sep. 12,2010
(Sabbatical Leave)
Faculty of Applied Natural Sciences
- **Al-Balqa' Applied University, Salt - Jordan**
Assistant Professor / Dept of physics Aug. 23, 2003- Nov.11, 2008
Lecturer / Dept of physics Feb. , 2002 - Aug. 22, 2003
- **Higher Institute of Technology, Libya**
Physics Instructor Oct. 1, 1994- Aug. 1996
Sep. 15, 1997- Aug.1998
- **Taught the following courses:**
 1. **Graduate courses- M.Sc students of Physics**
Special Topics in Experimental Materials Science
Mathematical Physics
Advance Quantum Mechanics
Advance Classical Electrodynamics
Advance Solid State Physics
Techniques of Experiments in Materials Science
 2. **Undergraduate - B.Sc. students of Physic, Science, and Engineering**
Radiation Physics, Radiation Protection and Safety, Nuclear Physics,
X-Ray Physics, Nuclear medicine Physics, Nuclear Instrumentation,
Ultrasound Physics and equipment , Quantum Mechanics (I&II),
Mathematical Physics (I&II),
Thermodynamics, Electromagnetic (I),
Electric Circuits, Applied Physics (Statics)
Physics 101, Physics 102, Physics 104
Physics Lab 111, 112 ,114 etc.

Positions Held

- **Head, Department of Radiological Sciences and Nuclear Medicine Technology**
Inaya Medical College, Riyadh- Saudi-Arabia Sept. 2013-Sept. 2014

- **Vice Dean**, Faculty of Science, Sep. 15, 2011- Sep.15, 2013
- **Dean Assistant for planning and quality assurance**, Feb. 2012- Sep. 15, 2013.
- **Vice Dean**, Prince Abdullah Bin Ghazi Faculty of Science and Information Technology, Al-Balqa Applied University, Oct. 24,2010- Sep. 10,2011.
- **Vice Dean**, Prince Abdullah Bin Ghazi Faculty of Science and Information Technology, Al-Balqa Applied University, Feb. 19,2009- Sep. 12, 2009.
- **Head, Applied Sciences Department**, Sep. 2, 2007- Feb.18,2009 .
- Council Member for graduate studies Sep. 20, 2010- Present (University level)
- Faculty council member.
- Faculty council member for study plans.
- Faculty council member for graduate studies and scientific research
- Department council member for graduate studies and scientific research
- Visiting professor of materials physics, Materials Science Program, Washington State University, Pullman, WA, USA, 2006.
- Visiting professor of materials physics, Semiconductors and Polymers Laboratory, Department of Physics, University of Rajasthan, India, summer 2004
- Visiting assistant professor of materials physics, Materials Science Laboratory, Department of Physics, Jamia Millia Islamia, India, summer 2004.

Membership, Grants, and Activities

- Member of Jordan Physics Society
- Life member of Thermo-Physical Society of India
- DST grants, Department of Physics, University of Rajasthan
- Member of teachers promotion committee, 4th Amman education directorate.

Research Experience

- **Radiation Physics**
 - Supervising under graduate students in their projects and training at local hospitals and King Faisal Specialist Hospital and Research, where they work on X-ray Diagnostic, Magnetic Resonance Image MRI. Nuclear Medicine, Ultrasound.
 - Research work involves also the measurements of natural radioactive contents of environmental samples.
 - Dose calculation is a topic of present interest in radiation physics.
- **Experimental Nuclear Materials Physics**
 - Establishment of a well-equipped materials science laboratory at the Department of Physics, Faculty of Science, Al- Balqa Applied University, Jordan- 2005.
 - Good research experience in preparation and characterization of bulk materials using DSC, SEM, TPS, Uv-Vis Spectrophotometer.
 - Low dimensional / surface physics: Preparation of thin films and

nanometric (Nanowires) range materials and characterization using different techniques such as EDX-SEM, XPS, STM, AFM, MFM, VSM etc.

Supervision /Co-Supervision of Graduate Students

Ph.D. Students

- **Ph.D. thesis/** Co-Supervisor “Thermal and electrical studies of $Se_{90}In_{10-x}Sn_x$ ($x=2, 4, 6$ and 8) chalcogenide glasses”. Omer A. Lafi. University of Jordan (awarded 2007).
- **Ph.D. thesis/** Co-Supervisor “ Optical and electrical properties of $Se_{90}In_{10-x}Sn_x$ ($x=2, 4, 6$ and 8) chalcogenide glasses”. Adel Shaheen. University of Jordan (awarded 2010).
- **Ph.D. thesis/** Co-supervisor “ Structural relaxation in Se-Te-Sn chalcogenide glass” Sharif Abu Al-Rub. University of Jordan (awarded 2012).
- **Ph.D. thesis/** Co-supervisor “ Physical Ageing in Se-Cd-Zn chalcogenide glasses” Rateb Al-Rjoub. University of Jordan (awarded 2012).

M.Sc. Students

- **M.Sc thesis/** Supervisor “ Electrical and optical properties of $Se_{90}Te_8Sn_2$ and $Se_{90}Te_6Sn_4$ chalcogenide glasses. Marwan Kloub. Al-Balqa Applied University (awarded 2009).
- **M.Sc thesis/** Co- Supervisor “ Optic-Electric behavior of $Se_{90}Te_4Sn_6$ and $Se_{90}Te_2Sn_8$ chalcogenide glasses. Hamdi Al-Aween. Al-Balqa Applied University (awarded 2009).
- **M.Sc thesis/** Supervisor “ Effect of gamma irradiation on some electric properties of $Se_{92}Sn_8$ chalcogenide glasses. Sameer Al-Bati, Al-Balqa Applied University (awarded 2010).
- **M.Sc thesis/** Supervisor “ Thermal properties of Se-Te-Sn semiconducting glasses”. Ibtehaj Khatatbeh, Al-Balqa Applied University (awarded 2010).
- **M.Sc thesis/** Co-Supervisor “ Thermal properties of $Se_{100-x}Sn_x$ ($x =2, 4, 6,$ and 8) semiconducting glasses”. Samer Sakhel, University of Jordan (awarded 2010).
- **M.Sc thesis/** Supervisor “ Dependence of electrical conductivity on composition in Se-Te-Sn semiconducting glasses” Fares Al-Kurdi, Al-

Balqa Applied University (awarded 2011).

- M.Sc thesis/ Co-Supervisor “ Transformations Kinetics in some Selenium-Tellurium-Tin chalcogenide glasses”. Nazem Abu Shaweesh, Al-Balqa Applied University (awarded 2011).
- M.Sc thesis/ Co-Supervisor “ Some electrical properties of Fe₃O₄ ferrofluid” Mazen Al-Dosooqi, Al-Balqa Applied Univ. (awarded 2012).

Thesis Examining Committees

Maryana Khalid Khalil, University of Jordan (2012)/Mazen Al-Dosooqi, Al-Balqa Applied University (2012)/ Nazem Abu Shaweesh, Al-Balqa Applied University-2011/ Fares Al-Kurdi, Al-Balqa Applied University-2011/ Murad Ahmad, Al-Balqa Applied University-2011/ Ahmad Mousa, Al-Balqa Applied University-2011/ Adel A. Shaheen. Jordan University-2010/ Samer Sakhel. Jordan University-2010/ Lina Abu-Arida. Al-Balqa Applied University-2010/ Sameer Al Bati. Al-Balqa Applied University-2010/ Ibtihaj Khatatbeh. Al-Balqa Applied University-2010/ Omar Naseer. Al-Balqa Applied University-2010/ Marwan Kloub. Al-Balqa Applied University- 2009/ Hamdi Al-Alaween. Al-Balqa Applied University-2009/ Sajedah Al-Amir. Balqa Applied University-2009/ Alia A. M. Kamleh. University of Jordan-2008/ Omer A. Lafi. University of Jordan- 2007/ Fadi Abu Sa'n. University of Jordan- 2007/ Mohammad J. Al Bqoor. Al-Balqa Applied University- 2006/ Samer J. Al-Kharouf. Al-Balqa Applied University, 2006/ Sarhan Zeyadeh, Al-Balqa Applied University, June-2006.

Journals Referee

- Solid State Science (Elsevier)
- Journal of Physics and Chemistry of Solids (Elsevier)
- International Journal of Thermal Science (Elsevier)
- Journal of Alloys and Compounds (Elsevier)
- Physica B, condensed matter (Elsevier)
- Vacuum (Elsevier)
- Materials Science in Semiconductor Processing (Elsevier)
- Materials Science (Springer)
- Research on Chemical Intermediates (Springer)
- Philosophical Magazine (Taylor & Francis)
- European Journal of Physics (IOP Science, European Physical Society)
- Journal of Nanoscience and Nanotechnology. (American Scientific Publishers)
- Science of advanced Materials (American Scientific Publishers)
- Jordan Journal of Physics (Deanship of Research and Graduate Studies, YU, Jordan)

- International Journal of Engineering, Science and Technology. (MultiCraft)
- Advanced Porous Materials
- Acta Metallurgica Sinica(English Letters) (Springer)
- Journal of Medical Imaging and Health Informatics (American Scientific Publishers)

Books

- Fundamentals of Electric Circuits (Publisher, Al Quds Open University, 2008- Text book)
Mohammad Al-Awaisi and **Mousa M. A. Imran**
- Translation of Physics Textbook, teacher and student guides, and laboratory manual for the 10th grade (Obekan Research and Development 2010)
- Translation of “Physics, Principles and Applications” University Textbook by Giancoli (Obekan Research and Development-2010-2013).

Training Courses and Visits

- Three months scientific visit at Washington State University (on the preparation of nano-materials and their characterization using VSM, SEM, EDS, XPS, AFM, STM) sponsored by the World Bank and the Higher Educational Development Program of Jordan.
- Visiting professor of Radiation physics, Radiation Measurements Laboratory, Department of Physics, University of Rajasthan, India. Summer-2005.
- Visiting professor of materials physics, Semiconductors and Polymers Laboratory, Department of Physics, University of Rajasthan, India. Summer-2004.
- Visiting professor of materials physics, Materials Science Laboratory, Department of Physics, Jamia Millia Islamia, India. Summer- 2004.

Projects

- Physical Properties of Some Disordered Materials, Funded by the Deanship of Scientific Research, BAU: 2003-2005.
- Enhancement and Development of Materials Science Education and Technology, Funded by the World Bank and the Higher Educational Development Program of Jordan: 2003-2006.

Conferences

- The 2nd International Symposium on Nuclear Energy (ISNE-09) (**Scientific and Organizing Committees**) October, 26-28, 2009 Amman, Jordan.
- Optics 11, An international conference on light 2010, (**International advisory committee**) Calicut-India.
- The Third International Symposium on Nuclear Energy, ISNE-10, (**Organizing Committee**) December, 15-17, 2010, Amman, Jordan.
- The second National workshop on synchrotron users (SESAME) held at Jordan University, Jordan, May 10/5/2007.
- The first National workshop on synchrotron users (SESAME) held at Jordan University, Jordan, May 10/5/2006.
- Nanostructured Advanced Materials and Technology, Amman, Jordan, Nov. 10-23, 2008. (**Organizing Committee**)
- Sixth International Conference on Diffusion in Materials, Krakow, Poland, July 18-23,2004
- International Conference on Advanced Materials (ICAM), 2000, Merut, India.
- International conference on the thermophysical properties of materials, 2000, Guwahati, India.
- National conference on Semi-conducting Materials and Recent Technology (SMART) organized by the semiconducting society of India, 1999, Pantnagar, India.

References

- **Prof. N.S.Saxena**, Department of Physics, University of Rajasthan, Jaipur- India, e-mail: n_s_saxena@redifmail.com
- **Prof. Ma'rouf . K. Abdullah**, Department of Physics, University of Jordan, Phone No.+962-777-421334.
- **Prof. Munir Dababneh** , Department of Physics, Al-Balqa Applied University, munir49@hotmail.com

Publications

Referred Journals

1. Effect of chemical ordering on the crystallization behavior of $\text{Se}_{90}\text{Te}_{10-x}\text{Sn}_x$ ($x=2, 4, 6,$ and 8) chalcogenide glasses.
Journal of Physics and Chemistry of Solids 75 (2014)790–795 ELSEVIER
Omar A. Lafi, **Mousa M.A.Imran**
2. The effect of indium additive on the structural relaxation of Se-Sb-Sn semiconducting glasses
Materials Science in Semiconductor Processing 16 (2013) 1029 ELSEVIER
Ali F. Al-Shawabkeh, **Mousa M. A.Imran**
3. Thermal characterization of $\text{Se}_{100-x}\text{Sn}_x$ ($x = 4, 6,$ and 8) chalcogenide glasses using differential scanning calorimeter.
Thermochimica Acta 560 (2013) 71-75. ELSEVIER
Omar A. Lafi, **Mousa M.A.Imran**, Ma'rouf K. Abdullah, Samar A. Al-Sakhel
4. Electrical conductivity, density of states and optical band gap in $\text{Se}_{90}\text{Te}_6\text{Sn}_4$ glassy semiconductor
Physica B: Condensed Matter 410 (2013) 201 ELSEVIER
Mousa M. A.Imran , Omar A. Lafi
5. Effect of thermal annealing on some electrical properties and optical band gap of vacuum evaporated $\text{Se}_{65}\text{Ga}_{30}\text{In}_5$ thin films
Vacuum Journal 86 (2012) 1589 ELSEVIER
Mousa M. A. Imran, Omar A. Lafi, M. Abu-Samak
6. Thermal characterization of $\text{Se}_{85-x}\text{Sb}_{15}\text{Sn}_x$ ($10 \leq x \leq 13$) chalcogenide glasses
Physica B: Condensed Matter 406 (2011) 4289 ELSEVIER
Mousa M.A. Imran
7. Glass transition kinetics and optical band gap in $\text{Se}_{85-x}\text{Sb}_{15}\text{Sn}_x$ ($x = 10, 11, 12.5,$ and 13) chalcogenide glasses
Materials Chemistry and Physics 129 (2011) 1201. ELSEVIER
Mousa M. A.Imran , Omar A. Lafi
8. Crystallization kinetics, glass transition kinetics and thermal stability of $\text{Se}_{70-x}\text{Ga}_{30}\text{In}_x$ ($x= 5, 10, 15,$ and 20) semiconducting glasses.
Physica B: Condensed Matter 406 (2011) 482. ELSEVIER
Mousa M. A. Imran

9. Compositional dependence of thermal stability, glass-forming ability and fragility index in some Se–Te–Sn glasses.
Journal of Alloys and Compounds 509 (2011) 5090. **ELSEVIER**
Omar A. Lafi, **Mousa M.A. Imran**
10. Experimental investigation on some electrical parameters of $\text{In}_{10-x}\text{Sn}_x\text{Se}_{90}$ ($x = 2, 4, 6, \text{ and } 8$) chalcogenide glasses before and after gamma-irradiation
Current Applied Physics 11 (2011) 492. **ELSEVIER**
Adel A. Shaheen , **Mousa M.A. Imran** , Omar A. Lafi , Ma'rouf K. Abdullah
11. Structural relaxation due to sub- T_g annealing of $\text{Se}_{98}\text{In}_{1.5}\text{Sn}_{0.5}$ chalcogenide glass
Journal of Alloys and Compounds 500 (2010) 237. **ELSEVIER**
Mousa M.A. Imran, Ali F. Al-Shawabkeh
12. The effect of gamma-irradiation on glass transition temperature and thermal stability of $\text{Se}_{96}\text{Sn}_4$ chalcogenide glass.
Radiation Physics and Chemistry 79 (2010) 104. **ELSEVIER**
Omar A. Lafi, **Mousa M.A.Imran**
13. Effect of gamma irradiation on some electrical properties and optical band gap of bulk $\text{Se}_{92}\text{Sn}_8$ chalcogenide glasses.
Physica B: Condensed Matter 405 (2010) 2643. **ELSEVIER**
M.A. Al-Ewaisi, **Mousa M.A.Imran**, Omar A. Lafi, M. Kloub
14. Optical properties of a- $\text{Se}_{90}\text{In}_{10-x}\text{Sn}_x$ chalcogenide thin films before and after gamma irradiation
Radiation Physics and Chemistry 79 (2010) 923. **ELSEVIER**
Adel A. Shaheen , **Mousa M.A. Imran**, Omar A. Lafi, Moh'd I. Awadallah,
Ma'rouf K. Abdullah

15. Electrical studies on bulk $\text{Se}_{96}\text{Sn}_4$ semiconducting glass before and after gamma irradiation
Journal of Physics and Chemistry of Solids 71 (2010) 1534. ELSEVIER
Sameer N. Al-Bati, Omar A. Lafi , **Mousa M.A. Imran**, Moh'd M. Shaderma

16. Structural and magnetic properties of electrodeposited Ni nanowires.
Journal of Alloys and Compounds 455 (2008) 17. ELSEVIER
Mousa M.A.Imran

17. Physical ageing in $\text{Se}_{94}\text{Sn}_6$ glass induced by gamma irradiation
Physica B: Condensed Matter 403 (2008) 2639. ELSEVIER
Mousa M.A.Imran, I.F. Alhamarneh, M.I. Awadallah, M.A. Al-Ewaisi

18. Chemical bond approach to glass transition temperature and crystallization activation energy in $\text{Se}_{90}\text{In}_{10-x}\text{Sn}_x$ ($2 \leq x \leq 8$) semiconducting glasses.
Materials Chemistry and Physics 108(2007)109. ELSEVIER
Omar A. Lafi, **Mousa M.A.Imran**, Ma'rouf K. Abdullah

19. Glass transition activation energy, thermal stability and glass forming ability of $\text{Se}_{90}\text{In}_{10-x}\text{Sn}_x$ ($x=2, 4, 6$ and 8) semiconducting glasses.
Physica B: Condensed Matter 395 (2007) 69 ELSEVIER
Omar A. Lafi, **Mousa M.A.Imran**, Ma'rouf K. Abdullah

20. Experimental investigation of gamma ray attenuation in Jordanian building materials using HPGe spectrometer.
Journal of Environmental Radioactivity 94 (2007) 129. ELSEVIER
Mohammad Awadallah and Mousa M.A.Imran

21. Optical Band Gap and Optical Constant of $\text{Se}_{98}\text{Sn}_x$ ($x = 2, 4, 6, \text{ and } 8$) Thin Films.
Journal of Optoelectronics and Advanced Materials 1(4)(2007)176.
Mousa M.A.Imran
22. Radioactive contents in construction materials used in Jordanian buildings.
Dirasat 34(1)(2007)99.
Mohammad Awadallah and Mousa M.A.Imran
23. Thermal conductivity, thermal diffusivity and specific heat of $\text{Se}_{98}\text{In}_{2-x}\text{Sn}_x$ ($x=0, 0.5, 1, \text{ and } 1.5$) semiconducting glasses.
Al-Balqa' 11(1) (2005) 11.
Mousa M.A.Imran and Mohammad Al-Awaisi
24. Crystallization mechanism and thermal stability of $\text{Se}_{98}\text{In}_{2-x}\text{Sn}_x$ ($x=0, 0.5, 1, \text{ and } 1.5$) semiconducting glasses.
Al-Balqa' 11(2) (2006) 31.
Mousa M.A.Imran and Mohammad Al-Awaisi
25. Crystallization kinetics and optical band gap studies of $\text{Se}_{96}\text{In}_4$ glass before and after slow neutron irradiation.
Journal of Non –Crystalline Solids 298(2002)53. **ELSEVIER**
Mousa M. A. Imran, N. S. Saxena, Y.K. Vijay, R. Vijayvergiya, N. B. Maharjan, M. Husain
26. Simultaneous measurements of thermal conductivity and diffusivity of $\text{Se}_{80}\text{Te}_{20-x}\text{In}_x$ ($x = 2, 4, 6 \text{ and } 10$) chalcogenide glasses at room temperature.
Bulletin of Materials Science 25(3)(2002)241
N. S. Saxenna, Mousa M. A. Imran and Kedar Singh
27. Enthalpy recovery during structural relaxation of $\text{Se}_{96}\text{In}_4$ chalcogenide glass.
Physica B: Condensed Matter 293 (2001)394. **ELSEVIER**

Mousa M. A. Imran, *Deepika Bhandari and N. S. Saxena.*

28. Kinetic studies of bulk $\text{Ge}_{22}\text{Se}_{78-x}\text{Bi}_x$ ($x=0,4$ and 8) semiconducting glasses.

Journal of Thermal Analysis 65/1 (2001) 257.

SPRINGER

M. M. A. Imran, *D. Bhandari and N. S. Saxena*

29. Determination of the Avrami exponent from non-isothermal differential scanning calorimeter of $\text{Se}_{70}\text{Te}_{24}\text{Cd}_6$ chalcogenide glass.

Physica Scripta 61(2000)502.

IOP-SCIENCE

N. S. Saxena, Mousa M. A. Imran and Deepika Bhandari

30. Phase transformations of binary $\text{Se}_{100-x}\text{In}_x$ ($x=2,4$ and 10) semiconducting chalcogenide glasses under isothermal condition.

Journal of Materials Science letters 19(18)(2000)606.

SPRINGER

M. M. A. Imran, *D. Bhandari and N. S. Saxena*

31. Glass transition phenomena, crystallization kinetics and thermodynamics properties of ternary $\text{Se}_{80}\text{Te}_{20-x}\text{In}_x$ ($x=2,4,6,8$ and 10) semiconducting glasses: theoretical and experimental aspects.

Materials Science and Engineering A 292(1)(2000)56.

ELSEVIER

Mousa M. A. Imran, *Deepika Bhandari and N. S. Saxena*

32. Differential scanning Calorimetry studies of $\text{Se}_{85}\text{Te}_{15-x}\text{Pb}_x$ ($x=4,6,8$ and 10) glasses.

Bulletin of Materials Science 23(5) (2000) 396.

N.B.Maharjan, N.S.Saxena, Deepika Bhandari, **Mousa M.A.Imran** and D.D.Paudyal

33. Glass transition phenomena, crystallization kinetics and enthalpy released in binary $\text{Se}_{100-x}\text{In}_x$ ($x=2,4$ and 10) semiconducting glasses.

Physica Status Solidi (a) 181/1 (2000) 357.

Wiley-VCH

Mousa M A. Imran, *N. S. Saxena, D. Bhandari and M . Husain*

Papers In Conferences

34. Phase transformation and enthalpy released in $\text{Ge}_{22}\text{Se}_{78-x}\text{Bi}_x$ ($x=0,4$ and 8)
semiconducting chalcogenide glasses. Presented in the national conference on
Semiconductor Materials and Recent Technologies (SMART), November, 1999.
Sponsored by the Semi-conducting Society of India.

35. Crystallization kinetics of ternary $\text{Se}_{80}\text{Te}_{20-x}\text{In}_x$ ($x = 2,4$ and 10)
semiconducting glasses under isothermal and non-isothermal conditions.
Proceeding of the 6th Asian
Thermophysical Properties conference. October 8-11, 2001, Guwahati, India.

36. Accuracy of measurements of the activation energy of crystallization by
Kissinger method: theoretical and experimental considerations. Proceeding of
the 6th Asian Thermophysical Properties conference. October 8-11, 2001,
Guwahati, India

37. Structural relaxation study due to sub- T_g annealing $\text{Se}_{75}\text{Te}_{21}\text{Sn}_4$ chalcogenide glass
Proceeding of the 6th Asian Thermophysical Properties conference. October 8-11,
2001, Guwahati, India