

# Omar A. Lafi

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Associated Professor of Physics  
Department of Physics  
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Al-Balqa Applied University,  
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## Personal Information

Date and Place of Birth	July 3, 1966 Al-Karama
Nationality	Jordanian
Marital Status	Married, with 7 children
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## Education

- **Ph.D. Materials Physics** , University of Jordan, Jordan (2008)  
Dissertation Title: Thermal and electrical studies of  $\text{Se}_{90}\text{In}_{10-x}\text{Sn}_x$  ( $x = 2, 4, 6$  and  $8$ ) chalcogenide glasses.
- **M.Sc. Nuclear Physics**, University of Jordan, Jordan (1991)  
Thesis Title: Resonance gamma ray absorption in  $^{208}\text{Pb}$  using the nuclear reaction  $^{13}\text{C} (p, \gamma) ^{14}\text{N}$ .
- **B. Sc. Physics**, University of Jordan, Jordan (1989)

## Academic and Administrative Experience

1. Physics Laboratory Instructor, Jordan University (1988-1991).
2. Physics Teacher, Al-Jamia Schools (1991-1992).
3. Physics Teacher, Ministry of High Education (1992- 1996).
4. Physics Teacher, Ministry of Education/ Saudi Arabia (1996- 2002).
5. Lecturer, Al-Balqa' Applied University (2002 - 2008).
6. Assistant Prof., Al-Balqa' Applied University (24/3/2008 – 7/5/2012).
7. Associated Prof., Al-Balqa' Applied University (8/5/2012– present).

8. Head of Department of Physics, Faculty of Science, Al-Balqa Applied University (11/9/2011 - present).

- **Taught the following courses:**

Graduate courses-M.Sc. students of Physics

Quantum Mechanics  
Mathematical Physics  
Electrodynamics

Undergraduate - B.Sc. students of Science and Engineering

Thermodynamics  
Modern Physics  
Mathematical Physics  
Optics  
Quantum Mechanics  
Physics 101: Introduction to Mechanics  
Physics 102: Introduction to Electricity and Magnetism  
Physics Lab 111, 112, 114, 115 etc.

## **Research Experience and Activities**

1. Training and working on Van de-Graff Accelerator (JUVA).
  2. Participation in Laser Conference, Jordan University (1989).
  3. Participation in SESAME workshops (2002 - 2012).
  4. Training and working on Material Physics Laboratory, Al-Balqa' Applied University.
  5. The present research interests in materials science focused on:
    - Preparation and studying the thermal, optical and electrical properties of bulk amorphous semiconductors using DSC, SEM, TPS, UV-Vis Spectrophotometer, Keithley electrometer and impedance/gain phase analyzer.
    - Determination of the local coordination number of Sn, In, Ge and Bi and the type of bonding which they make with Se in Se-In, Se-Sn, Se-In-Sn, Se-In-Ge-Sn, Se-Ge-In semiconducting chalcogenide glasses using extended X-ray absorption fine structure (EXAFS) and X-ray absorption near edge structure (XANES).
    - Studying the effect of gamma irradiation on the thermal, optical and electrical properties of bulk amorphous semiconductors.
    - Studying the Physical ageing in amorphous semiconductors and polymers induced by gamma irradiation.
- **Supervision of Graduate Students**
    - M.Sc thesis/ Co-Supervisor "Thermal Studies on Selenium-Tellurium-Tin Semiconducting Glasses", Ibtehaj K. Katatbeh, January 2010.
    - M.Sc thesis/ Co-Supervisor "The effect of gamma irradiation on the

electrical properties of Tin Selenide Semiconductor glass", Samir N. Al-Bati, January 2010.

- M.Sc thesis/ Supervisor "Transformations Kinetics in Selenium-Tellurium-Tin Chalcogenide Glasses ", Nazem I. Abo-Shaweesh, March, 2011.
- M.Sc thesis/ Co-Supervisor "Composition Dependence of Electrical Conductivity in Selenium-Tellurium-Tin Semiconducting Glasses", Faris M. Al-Kurdi, April, 2011.
  
- **M.Sc Thesis Examining Committees**
  - "Electrical and Optical properties of  $\text{Se}_{90}\text{Te}_8\text{Sn}_2$  and  $\text{Se}_{90}\text{Te}_6\text{Sn}_4$  semiconductor glasses", Marwan M. Al-Kloub, Al-Balqa Applied University, May-2009.
  - "Opto-Electric Behavior of  $(\text{Se}_{90}\text{Te}_4\text{Sn}_6)$  and  $(\text{Se}_{90}\text{Te}_2\text{Sn}_8)$  Chalcogenide Glasses". Hamdi Al-Alaween, Al-Balqa Applied University, August-2009.
  - "Evaluation of scatter dose contribution of  $^{192}\text{Ir}$  in brachytherapy by Monte Carlo Simulation", Eshraq Ababneh, Al-Balqa Applied University, August-2009.
  - "Experimental Study of the Thermal Properties of  $\text{Se}_{100-x}\text{Sn}_x$  ( $x = 2, 4, 6 \& 8$ ) Semiconducting Glasses", Samar A.R. Al-Sakhel, University of Jordan, July-2010.
  - "Bragg-Curve measurement and simulation of Heavy-Ion Beams for Hadron Therapy applications", Murad Hamad. Al-Balqa Applied University, December-2010.
  - "The Calibration of *In-Situe* Gamma-Ray Spectrometers: A Comparative of Different Approaches, Ahmad Mousa Al-Qararah, Al-Balqa Applied University, December-2010.
  - "Electrical properties of  $\text{Fe}_3\text{O}_4$  ferrofluid", Mazen Dasouqi, Al-Balqa Applied University, December-2011.

## **Publications**

1. 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** 395 (2007) 69 – 75.  
**Omar A. Lafi**, Mousa M.A. Imran, Ma'rouf K. Abdullah.
2. 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(2008)109 -114.  
**Omar A. Lafi**, Mousa M.A. Imran, Ma'rouf K. Abdullah.
3. 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) 104-108.  
**Omar A. Lafi**, Mousa M.A. Imran.

4. Effect of gamma irradiation on some electrical properties and optical band gap of bulk  $\text{Se}_{92}\text{Sn}_8$  chalcogenide glass, **Physica B** 405 (2010) 2643-2647.  
M.A. Al-Ewaisi, Mousa M.A. Imran, **Omar A. Lafi**, Moh'd W. Kloub.
5. 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) 923-928.  
Adel A. Shaheen, Mousa M.A. Imran, **Omar A. Lafi**, Moh'd I. Awadallah, Ma'rouf K. Abdullah.
6. 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) 1534-1539.  
Sameer N. Al-Bati, **Omar A. Lafi**, Mousa M.A. Imran, Moh'd M. Shaderma.
7. 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) 492-497.  
Adel A. Shaheen, Mousa M.A. Imran, **Omar A. Lafi**, Ma'rouf K. Abdullah.
8. Compositional dependence of thermal stability, glass-forming ability and fragility in some Se - Te - Sn glasses, **Journal of Alloys and Compounds** 509 (2011) 5090 - 5094.  
**Omar A. Lafi**, Mousa M.A. Imran.
9. Glass transition kinetics and optical band gap in  $\text{Se}_{85-x}\text{Sb}_{15}\text{Sn}_x$  ( $x = 10, 11, 12.5, \text{ and } 13$ ) chalcogenide glasses, **Materials Chemistry and Physics** 129 (2011) 1201-1206.  
Mousa M.A. Imran, **Omar A. Lafi**.
10. Glass transition kinetics and crystallization mechanism in  $\text{Se}_{90}\text{Cd}_8\text{Bi}_2$  and  $\text{Se}_{90}\text{Cd}_6\text{Bi}_4$  chalcogenide glasses, **Journal of Alloys and Compounds** 519 (2012) 123 - 128.  
**Omar A. Lafi**.
11. 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** 86(2012)1589-1594.  
Mousa M.A. Imran, **Omar A. Lafi**, M. Abu-Samak.
12. Electrical conductivity, density of states and optical band gap in  $\text{Se}_{90}\text{Te}_6\text{Sn}_4$  glassy semiconductor, **Physica B** 410 (2013) 201-205.  
Mousa M.A. Imran, **Omar A. Lafi**.
13. Thermal characterization of  $\text{Se}_{100-x}\text{Sn}_x$  ( $x = 4, 6 \text{ and } 8$ ) chalcogenide glasses using differential scanning calorimeter, **Thermochimica Acta** 560 (2013) 71-75.  
**Omar A. Lafi**, Mousa M.A. Imran, Ma'rouf K. Abdullah, Samar A. Al-Sakhel.

## **References**

- **Prof. Abdul-Halim Wriekat**, Jordan Atomic Energy Commission, [wriekat@ju.edu.jo](mailto:wriekat@ju.edu.jo)
- **Prof. Ma'rouf K. Abdullah**, Department of Physics, University of Jordan, Mobile. +962-777-421334.
- **Prof. Mousa M.A. Imran**, Department of Physics, Faculty of Science, Al-Balqa' Applied University, Mobile: +962 777 993459, [mousa99@yahoo.com](mailto:mousa99@yahoo.com)