



Prof. JEBREEL M. KHOSHMAN

PhD in Condensed Matter and Surface Science

Dept. of Physics

College of Science

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Research Gate: https://www.researchgate.net/profile/Jebreel_Khoshman

Google Scholar: <https://scholar.google.com/citations?user=rFvE1BYAAAAJ&hl=en>

RESEARCH INTERESTS

- Growth and characterization of thin films.
- Optical Spectroscopy Ellipsometry and characterization of thin films.
- Optoelectronic applications of wide-band-gap semiconductor thin films.
- Band Gap Engineering of materials.
- X-ray characteristics of thin films.
- Amorphous and crystalline semiconductors.
- Science education.

EDUCATION BACKGROUND

- **PhD** in Physics (Condensed Matter & Surface Science), Ohio University, USA (2005).

Dissertation: *Spectroscopic Ellipsometry Characterization of Single and Multilayer Aluminum Nitride / Indium Nitride Thin Film Systems.*

Advisor: **Prof. M. E. Kordesch** (kordesch@ohio.edu)

- **M. Sc.** in Physics (Condensed Matter & Surface Science), Ohio University, USA (2003).

- **M. Sc.** in Physics (Optics of Solid State Physics), Jordan University, **Jordan** (1999).
- **Higher Diploma** in Educational Science, Mu'tah University, **Jordan** (1998).
- **B. Sc.** in Physics and Mathematics, Al-Yarmouk University, **Jordan** (1992).

EXPERIENCE

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|---------------|---|
| 2018– Present | Dean of the college of Science, Al-Hussein Bin Talal University, Ma'an, Jordan |
| 2017– 2018 | Manager of Studies, Consultations & Community Development Center (SCCDC), Al-Hussein Bin Talal University, Ma'an, Jordan |
| 2016 – 2017 | Full Prof. at department of Physics, Al-Hussein Bin Talal University, Ma'an, Jordan |
| 2013 – 2016 | Associated Prof. at department of Physics, Al-Hussein Bin Talal University, Ma'an, Jordan |
| 2011 – 2013 | Associated Prof. at department of Basic Science & Humanities, College of Engineering, Imam Abdulrahman Bin Faisal University (IAU) (University of Dammam), Dammam, Saudi Arabia |
| 2010 – 2011 | Associated Prof. at department of Physics, Al-Hussein Bin Talal University, Ma'an, Jordan |
| 2009 – 2010 | Visiting Prof. at für Festkörperphysik (Solid State Physics), Technischen Universität (TU) Berlin, Berlin, Germany. |
| 2007 – 2009 | Assistant Prof. at department of Physics, Al-Hussein Bin Talal University, Ma'an, Jordan |
| 2006 – 2007 | Vice Dean for Faculty of Science, Al-Hussein Bin Talal University, Ma'an, Jordan |
| 2005 – 2006 | Assistant Prof. at department of Physics, Al-Hussein Bin Talal University, Ma'an, Jordan |
| 2001 – 2005 | Teaching and research assistant at department of Physics & Astronomy, Ohio University, USA |

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| 1999 – 2001 | Full time instructor's of physics at department of Physics, Al-Hussein Bin Talal University, Ma'an, Jordan |
| 1997 – 1999 | Teaching and research assistant at department of Physics, Jordan University, Jordan |
| 1993 – 1996 | Full time teacher's of physics at Ma'an Comprehensive High School, Ministry of Education, Ma'an, Jordan |

PROFESSIONAL DISTINCTIONS AND AWARDS

- Highest honors PhD student award (GPA 3.94 out of 4, Ohio University, USA, 2005).
- Highest honors M.Sc. student award (GPA 3.93 out of 4, Ohio University, USA, 2003).
- Highest level of distinction Higher diploma student (Average: 87.80, rating: excellent), Mu'tah University, Karak, Jordan, 1998.
- Best Condensed Matter & Surface Science and Quantum Phenomena Institute, Ohio University poster award, 2004.
- a new discovery in the field of optoelectronic devices as mentioned in the following link:

Physics Alum, Professor Explore Optical Constraints of Semiconductor Zinc Oxide for First Time: <http://www.ohio-forum.com/2014/06/physics-alum-professor-explore-optical-constraints-of-semiconductor-zinc-oxide-for-first-time/>

FELLOWSHIPS

- A full scholarship from Al-Hussein Bin Talal University in Jordan as well as Ohio University in USA to award Ph.D. degree in Physics (Experimental Applied Solid State Physics) from **Ohio University, USA.**
- Visiting researcher at the department of physics and astronomy, Ohio University for the period June 10 – September 10, 2006
- Six months scholarship from the European Commission's (Erasmus Mundus External Cooperation Window Lot 3) within the period from February 1 to September 1, 2009 in the Institutes für Festkörperphysik, **Technischen Universität (TU) Berlin, Berlin, Germany.**

- Three months scholarship from the DFG within the period from June 10 to September 10, 2010 in the Institutes für Festkörperphysik, **Technischen Universität (TU) Berlin, Berlin, Germany.**
- Visiting professor at the department of physics, Universidade **do Minho (P BRAGA01), Braga, Portugal**, in the framework of the Erasmus + staff mobility for teaching and training, JAMIES – International Credit Mobility, 2019/2020.

CONFERENCES AND WORKSHOPS

- International Workshop on *Nitride Semiconductors* (IWN 2004, Pittsburgh, Pennsylvania, **USA** (July 2004, Poster contribution).
- Materials Research Society (MRS) 2004 Fall Meeting, Boston, Massachusetts, **USA** (November 2004, Poster contribution).
- International Conference of *Nitride Semiconductors 6th*, Bremen, **Germany** (September 2005, Poster contribution).
- Europ Materials Research Society (E-MRS) 2005 Fall Meeting, Warszawa, **Poland** (September 2005, Oral contribution).
- 4th Synchrotron Light for Experimental Science and Applications in the Middle East Users Meeting, December, 2005, Amman, **Jordan**.
- International Workshop on *Nitride Semiconductors* (IWN 2006, Kyoto, **Japan** (October 2006, Poster contribution).
- 5th Synchrotron Light for Experimental Science and Applications in the Middle East Users Meeting, November, 2006, Alexandrina, **Egypt**.
- Europ Materials Research Society (E-MRS) 2007 Spring Meeting, Strasbourg, **France** (May 2007, Oral contribution).
- 6th Synchrotron Light for Experimental Science and Applications in the Middle East Users Meeting, November, 2007, Amman, **Jordan**.
- 22nd International Conference on *Amorphous and Nanocrystalline Semiconductors* (ICANS 22) 2007, Colorado, **U.S.A** (Aug. 19 - 24, 2007, Oral contribution).
- 14th International Conference on *Thin Films & Reactive Sputter Deposition* (ICTF 14) 2008, Ghent, **Belgium** (November 17 – 20, 2008, Oral contribution).
- Europ Materials Research Society (E-MRS), SPRING MEETING IUMRS ICAM 2011 & E-MRS/MRS BILATERAL CONFERENCE on ENERGY, Nice, **France** (May 2011, Two Oral contributions).
- Workshop on *Solid State Lighting*, King Abdullah University of Science and Technology (KAUST), Jeddah, **Saudi Arabia** (February 13-14, 2012).
- First Saudi Renewable Energy Conference & Exhibition, King Fahd University of Petroleum & Minerals (KFUPM), Dhahran, **Saudi Arabia** (19-21 February, 2012).
- Workshop on Panalytical XRF and XRD, Movenpick Jeddah, **Saudi Arabia** (April 15 – 16, 2012).

- Workshop on *Strategies for Improving Research Outcomes*, University of Dammam, Dammam, **Saudi Arabia** (15 – 17 September 2012).
- Workshop on *Assessment Strategies in Higher Education*, University of Dammam, Dammam, **Saudi Arabia** (28th November 2012).
- Workshop on *Atomic Force Microscopy-Tribology & Mechanical Testing – Surface Profilometry*, Sofitel Hotel Al Khobar, **Saudi Arabia** (1st of December 2012).
- Workshop on *Teaching Skills in the 21st Century*, University of Dammam, Dammam, **Saudi Arabia** (February 19 – 20, 2013).
- Building International Networks for Enhancement of Research in Jordan, Princess Sumaya University for Technology (PSUT), Amman, **Jordan** (April 3 - 5, 2014, Oral contribution).
- Second International Multidisciplinary Microscopy and Microanalysis Congress & Exhibition – InterM 2014, Oludeniz – **Turkey** (October 16-19, 2014, Oral contribution).
- International Conference on Advanced Materials (ICAM 2015), University of Science and Technology, Irbid – **Jordan** (April 27-29, 2015, Oral contribution).
- 26th International Conference on Amorphous and Nanocrystalline Semiconductors (ICANs 26), **Aachen-Germany** (September 13th - 18th, 2015, Oral contribution).
- 13th Synchrotron Light for Experimental Science and Applications in the Middle East Users Meeting, November, 2015, Amman, **Jordan**.
- International Conference on Advanced Materials (ICAM 2017), University of Science and Technology, Irbid – **Jordan** (July 10-13, 2017, Oral contribution).
- World Science Forum (WSF) 2017, Science for Peace, 7th to 11th November 2017 at the King Hussein Bin Talal Convention Centre at the Dead Sea, **Jordan**.
- Frontiers in Theoretical and Applied Physics (FTAPS 2017), American University of Sharjah (**AUS**), **UAE** (22–25 February 2017, Oral contribution).
- 8th International Advances in Applied Physics and Materials Science Congress & Exhibition (APMAS 2018), 24 to 30 April 2018 in Fethiye - Mugla, **Turkey** (Oral contribution).
- 16th Synchrotron Light for Experimental Science and Applications in the Middle East Users Meeting, 15th – 16th December, 2018, Amman, **Jordan**.
- International Conference on Advanced Energy Materials (AEM 2019), 11 - 13 September 2019, at **the University of Surrey, Guildford, United Kingdom (UK)** (Oral contribution).

REFeree IN SCIENTIFIC JOURNALS

- Journal of Applied Physics
- Journal of the Optical Society of America B
- Optics and laser Technology
- Applied Surface Science
- Journal of material Science

- Canadian Journal of Physics
- The Scientific Research Support Fund (SRSF), Jordan
- Thin Solid Films

ACADEMIC PROMOTION REFREE

- Engineering College and Science Collage, University of Tikrit, Tikrit, Iraq (Rank of full professor)
- Department of Physics, Al-Zarqa University, Zarqa, Jordan (Rank of associated professor)
- Department of Physics, Al-Quds University, Abu Dis, Jerusalem, Palestinian (Rank of associated professor)
- Department of Physics, Al-Hussein Bin Talal University, Maan, Jordan ((Ranks of associated professor and full professor)

Editorial Board Members

Journal of Insight - Applied Surface and Interface Science
(<http://insight.piscomed.com/index.php/IASIS>)

Journal of Chemistry and Materials Research
(<http://www.oricpub.com/jcmr-editorial-board>).

Al-Hussein Bin Talal University Journal of research
(<http://www.ahu.edu.jo>)

PARTICIPATION IN COURSES

1. ICDL (International Computer Driving License), **Jordan**
2. Rigaku Co., Inc. Training on x-ray diffraction (XRD) basic course, 17 – 23 May 2013, Rigaku Europe SE, Ettlingen, **Germany**
3. PASCO Co., Inc. Training on Freshman Laboratory Equipment, 12 – 15 March 2012, Roseville, California, **USA**
4. Woollam Co., Inc. Training on Software, Hardware, and Data Analysis of Variable Angle Spectroscopic Ellipsometry (VASE), 1 – 5 October 2012. J. A. Woollam Company, 645 M Street, Suite 102, Lincoln, Nebraska 68508, **USA**

PUBLICATIONS: REFEREED JOURNAL ARTICALES:

Research gate Citations: 493

Google Scholar Citations: 650

H-index: 11

1. **Jebreel M. Khoshman** and Martin E. Kordesch. Optical Characteristics of Amorphous III-V Nitride Thin Films, Mater. Res. Soc. Symp. Proc. **831**, E11.7 (2005)
2. **Jebreel M. Khoshman** and Martin E. Kordesch. Spectroscopic Ellipsometry Characterization of Amorphous Aluminum Nitride and Indium Nitride Thin Films, Physica Status Solidi (c) **2**, 2821 (2005).
3. **Jebreel M. Khoshman** and Martin E. Kordesch. Optical characterization of sputtered amorphous aluminum nitride thin films, J. Non-crystalline Solids **351**, 3334 (2005).
4. **Jebreel M. Khoshman** and Martin E. Kordesch. Optical Absorption in Amorphous InN Thin Films, J. Non-crystalline Solids **352**, 5572 (2006).
5. **Jebreel M. Khoshman** and Martin E. Kordesch. Optical Properties of a-HfO₂ Thin Films, Surface & Coatings Technology **201**, 3530 (2006).
6. **Jebreel M. Khoshman** and Martin E. Kordesch. Optical constants and band edge of amorphous zinc oxide thin films Thin Solid Films **515**, 7339 (2007). *One of the Top 25 Hottest Articles, July to September 2007.*
7. **J. M. Khoshman**, A. Khan, and M. E. Kordesch. Optical Properties of Sputtered Amorphous Beryllium Nitride Thin Films J. Appl. Phys. **101**, 103532 (2007).
8. **Jebreel M. Khoshman** and Martin E. Kordesch. Aluminum nitride/indium nitride bilayer and multilayer thin film systems as coatings for solar cells and longwave-pass filters, Physica Status Solidi (c) **4**, 2846 (2007).
9. **J. M. Khoshman**, A. Khan, and M. E. Kordesch. Hafnium Oxide Thin Films for Antireflection Optical Coatings Surface and Coatings Technology, **202**, 2500 (2008).
10. **J. M. Khoshman**, D. Ingram, and M. E. Kordesch, Band gap engineering in amorphous Be_xZn_yO Thin Films, Applied Physics Letters, **92** (2008) 091902.
11. **J. M. Khoshman**, D. C. Ingram and M. E. Kordesch, Growth and optical properties of amorphous Be_{0.13}Zn_{0.38}O_{0.49} thin films prepared by radio frequency magnetron sputtering, Journal of Non-Crystalline Solids, **354**, 2783 (2008).
12. **J. M. Khoshman**, W.D. Jennings and M.E. Kordesch, Ellipsometric study of a-Be₃N₂ thin films prepared by radio frequency magnetron sputtering, Applied Surface Science, **255**, 6190 (2009).
13. **J. M. Khoshman**, and M. E. Kordesch, Vacuum ultra-violet spectroscopic ellipsometry study of sputtered BeZnO thin films, Optik - International Journal for Light and Electron Optics, **122**, 2050 (2011).

14. **J. M. Khoshman**, N. Peica, C. Thomsen, J. Maultzsch, B. Bastek, C. Wan, and M. E. Kordesch, Growth and surface characterization of magnetron sputtered zinc nitride thin films, *Thin Solid Films* **520**, 7230 (2012).
 15. **J. M. Khoshman**, J. Hilfiker, N. tabet, and M. E. Kordesch Multiple oscillator models for the optical constants of polycrystalline zinc oxide thin films over a wide wavelength range *Applied Surface Science*, **307** (2014) 558.
- This paper shows a new discovery in the filed of optoelectronic devices as mentioned in the following link:
- <http://www.ohio-forum.com/2014/06/physics-alum-professor-explore-optical-constraints-of-semiconductor-zinc-oxide-for-first-time/>
16. **J. M. Khoshman**, A. A. Manda, and M. E. Kordesch, Near-Infrared optical constants and optical polarization properties of ZnO thin films, *Thin Solid Films*, **578** (2015)139.
 17. **J. M. Khoshman**, A. A. Manda, Q. A. Drmosh, and M. E. Kordesch, Growth and optical characteristics of Jordanian silica sand thin films, *Jordan Journal of Physics (JJP)*, **8** (2015) 205.
 18. A. M. Alrub, Lye-Hock Ong, K. H. Chew, **J.M. Khoshman**, Ghadeer N. Al Shabaan, Rawa'ah Abu Hilaleh, Phase transition of BiMnO₃ multiferroic thin film by *LANDAU Theory*, *International Journal of Modern Physics B (IJMPB)*, **30** (2016) 1650082
 19. **J. M. Khoshman**, D. C. Ingram, P. Jakkala, and M. E. Kordesch (2016), Optical conductivity tuning and electrical properties of a-Be_xZn_yO thin films *J. Non-crystalline Solids*, **440** (2016) 31.
 20. , M. S. Al-Rsaaie, **J. M. Khoshman**, and K. A. bu tayeh, Jordanian Pre-Service Physics Teacher's Misconceptions about Force and Motion, *Journal of Turkish Science Education*, **17** (2020) 528-543
 21. **J. M. Khoshman**, P. Jakkala, and M. E. Kordesch, Photoluminescence, Surface morphology, and optical polarization properties of Jordanian white silica sand thin films, submitted
 22. **J. M. Khoshman**, Effect of Growth Atmosphere on the Surface Morphology, Depolarization and Optical Constants of Polycrystalline ZnO Thin Films, submitted

Books:

Laboratory Manual Physics I and II, department of Basic Science & Humanities, College of Engineering, Imam Abdulrahman Bin Faisal University (IAU), Dammam, Saudi Arabia, 2013.

Teaching Experience:

Undergraduate courses

Introduction to physics 101 and 102, Solid state physics, Electromagnetic theory (EM I & EM II), Elementary optics, Advance optics, Electronics, Material Science, Mathematical physics I & II, Photonics, Dynamic for engineering students, and general science for educational science students.

Graduate courses

Solid state physics, Electrodynamics theory, Special subjects, Mathematical physics

Funded Projects - Research

- 1.** The **Deanship of Scientific Research** grant 2012-2013 at the Imam Abdulrahman Bin Faisal University (IAU) (**University of Dammam**) , **Saudi Arabia**, (Principal Investigator: *Optical constants and band gap energy for sputtered Zinc Nitride thin films*)
- 2.** The **Deanship of Scientific Research** grant 2012-2013 at the Imam Abdulrahman Bin Faisal University (IAU) (**University of Dammam**), **Saudi Arabia**, (Co-author: *Nano-particle doping effects on the properties of MgB₂ novel superconductors*)
- 3.** The American center of oriental research (ACOR)/Sustainable cultural heritage through engagement of local communities project (SCHEP), USAID 2021/2022 grant: Principal Investigator to establish the first Museum of Natural Science in the southern part of Jordan at Al-Hussein Bin Talal University

References

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