

CURRICULUM VITAE

PERSONAL DATA

Name	Ahmad Mohammad Kayed Alsaad
Nationality	Jordanian
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EDUCATION

Year	Academic Degree	Institution
(1998-2002)	Ph.D. in Physics	University of Arkansas, USA.
(1996-1998)	M.Sc. in Physics.	University of Arkansas, USA.
(1989-1991)	M.Sc. in Physics.	Rajasthan University, India
(1986-1989)	B.Sc. in Physics.	Rajasthan University, India

WORK EXPERIENCE

Period	Position	Address
(Apr. 2017-Aug. 2025)	Professor of Physics	Jordan University of Science and Technology, Jordan
(Jul. 2018-Aug. 2018)	Visiting Professor, Physics Department	University of Nebraska, Omaha, USA
(Jun. 2016-Aug. 2016)	Visiting Professor, Physics Department	University of Nebraska, Omaha, USA

(Sep. 2013-Sep. 2014)	Associate Professor, Physics Department (Sabbatical)	University of Nebraska, Omaha, USA
(Feb. 2013-Apr. 2017)	Associate Professor, Physics Department	Jordan University of Science and Technology, Jordan
(Jun. 2008-Sep. 2008)	Visiting Professor, Physics Department	Brandenburg Technical University, Germany
(Jun. 2005-Sep. 2005)	Visiting Professor, Physics Department	Brandenburg Technical University, Germany
(Jun. 2004-Aug. 2004)	Visiting Professor, Max Planck Institute	University of Stuttgart, Germany, Funded by DAAD
(Apr. 2003-Feb. 2013)	Assistant Professor, Physics Department	Jordan University of science and technology, Jordan
(Mar. 2002-Apr. 2003)	Full Time lecturer, Physics Department	Jordan University of science and technology, Jordan
(1996-2002)	Full Time lecturer, Physics Department	Jordan University of science and technology, Jordan
(1996-2002)	Research and Teaching Assistant, Physics Department	University of Arkansas, Fayetteville, Arkansas 72701, USA
(1991-1996)	Research and Teaching Assistant, Physics Department	Jordan university of science and technology, Jordan

RESEARCH INTERESTS

My research interest generally concentrates on the areas of experimental and theoretical condensed matter physics. I have a particular interest in the study of III-V semiconductors in general and Nitride semiconductor binaries and alloys in particular. I have been actively involved in developing computational techniques to study optical, electronic and piezoelectric properties of ternaries and quaternaries Nitride semiconductor alloys. In addition, I have a research interest and activities in the field of application of various scientific techniques in the study of various types of semiconductor materials such as Ga (As,N), (Ga,In)(As,N), (Sc, Ga)N alloys, (Sc,In)N alloys and (Ga,In)N alloys. I am particularly interested in analyzing the structural, optical, electronic and piezoelectric properties of various semiconductors binary compounds and alloys. Various types of scientific techniques such as Molecular Beam Epitaxy and Scanning Tunneling Microscopy (STM) have been utilized. In addition, state-of- the-art- first principles and pseudopotential techniques have been used to perform calculations on the optical, electronic and piezoelectric properties of various Nitride binary compounds and alloys. The results obtained from these experimental and theoretical studies have been used to obtain deeper understanding of these materials from a fundamental point of view. More precisely, these results lead to a new physics of nitride semiconductor materials. Furthermore, the technological applications of these materials could considerably enhance with further experimental and theoretical studies. I am currently interested in working on fabrication and characterization of Nitride quantum dots and Diluted Magnetic

Semiconductors (DMS). During my sabbatical year at university of Nebraska at Lincoln and Omaha/USA, I worked on the magnetic and optical properties of FePt and CoPt nanoparticles. Furthermore, I led the research in the field of organic molecular ferroelectric crystals. In particular, we studied the structural, electronic, optical and mechanical properties of Diisopropylammonium Bromide. Currently, I am spending the summer research at university of Nebraska working on structural, optical, mechanical, Lattice dynamical and piezoelectric properties of organic molecular ferroelectric crystals. As the reputation of organic crystals as inflexible has softened in recent years, we are investigating their applications in light-emitting components in flexible displays or organic field-effect transistors. In addition, I have an interest in theoretical nuclear physics. Particularly, the high precision measurements of the proton elastic electromagnetic form factors and their ratio at different Q^2 values in collaboration with researchers at Khalifa University of Science, Technology and Research (KUSTAR)/UAE and Argonne National Laboratory (ANL)/USA.

Experimentally, I focus on the fabrication and characterization of ZnO based thin films and the related nanomaterials which are currently an interesting field of study. We study the composition and surface morphology of the films grown at different temperatures by means of X-ray diffraction (XRD), X-ray photoelectron spectroscopy (XPS), atomic force microscope (AFM) and scanning electron microscope (SEM). Recently, I work on the fabrication and characterization of polymer thin films for optical and data storage applications. Recently, I am participating in several research projects involving two dimensional self-intercalating magnetic nanostructured systems, targeted drug delivery, and magneto metallic Nano systems for advanced scaled functional devices.

PUBLICATIONS

1. "Quantum mechanical effects in (Ga, In) (As, N) alloys", **A. Al-Yacoub (Alsaad)** and L. Bellaiche, Physical Review **B 62**, 10847 (2000)
2. "Piezoelectricity of ordered (Ga_{0.5}In_{0.5}) N alloys", **A. Al-Yacoub (Alsaad)** and L. Bellaiche, Applied Physics Letters **79**, 2166 (2001).
3. "Successes and Predictions of A Pseudopotential Approach in Anion-Mixed Nitrides," L. Bellaiche, **A. Al-Yacoub (Alsaad)**, N.A. Modine and E.D. Jones, in Semiconductor Materials for Optoelectronic Applications, editors: E.D. Jones, M.O. Manasreh, K.D. Choquette, D. Friedman, and D.K. Johnstone, Mater. Res. Soc. Proc., **692** (Materials Research Society Pittsburgh, PA, 2002) pp. 9-20.
4. "Piezoelectric Coefficients of Complex Semiconductor Alloys from First-Principles: The Case of Ga_{1-x}In_xN", **A. Al-Yacoub (Alsaad)**, L. Bellaiche and S. -H. Wei, Physical Review Letters **89**, 057601 (2002).
5. "Optical and piezoelectric anomalies of ordered (Sc, Ga) N and (Sc, In) N ternaries", **A. Alsaad** and A. Ahmad Eur. Phys. J. B **65**, 65-77 (2008).
6. "A First-Principles-derived Method for Computing the Piezoelectric Coefficients of Complex semiconductor Sc_{1-x}Ga_xN Alloys", **A. Alsaad**, A. Ahmad, H. Alta'ani and R. Alshyab, Physica B: Condensed Matter, Volume 403, Issues 23–24, 15 December 2008, Pages 4174–4181.
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8. "Structural phase transitions and piezoelectric anomalies in ordered Sc_{0.5}Ga_{0.5}N alloys", **A. Alsaad**, A. Ahmad, Bull. Mater. Sci., **Vol. 30**, No. 4, August 2007, pp. 407–413.
9. "Properties of GaN/ScN and InN/ScN superlattices from first principle", V. Ranjan, S. Bin-Omran, David Sichuga, Robert Sean Nichols, L. Bellaiche, and **Ahmad Alsaad**, Phys. Rev. B **72**, 085315 – Published 4 August 2005.
10. "Piezoelectricity of ordered (Sc_xGa_{1-x})N alloys from first principles", **A. Alsaad** A. Ahmad, The European Physical Journal B - Condensed Matter and Complex Systems November 2006, **Volume 54**, Issue 2, pp 151-156.
11. "Isostructural phase transitions in GaN/ScN and InN/ScN superlattice", V. Ranjan, S. Bin-Omran, L. Bellaiche, and **Ahmad Alsaad**, Phys. Rev. B **71**, 195302 – Published 3 May 2005.
12. "Properties of GaN/ScN and InN/ScN superlattices from first principles", V. Ranjan, S. Bin-Omran, David Sichuga, Robert Sean Nichols, L. Bellaiche, and **Ahmad Alsaad**, Phys. Rev. B **72**, 085315 – Published 4 August 2005.
13. "Performance evolution of easy-exponential back off algorithm in a mobile ad hoc network (MANET)", January 2009 Conference: 3rd Mosharaka International Conference on Communications, Signals and Coding, MIC-CSC Project: Media Access Control in MANETs Saher Manaseer, Muneer Bani Yassein, Al Sha'Bani R, **Ahmad Alsaad**.

14. "Reexamination of phenomenological two-photon exchange corrections to the proton form factors and $e\pm p$ scattering", I.Qattan, **A. Alsaad**, and J. Arrington, Phys. Rev. C **84**, 054317 – Published 21 November 2011.
15. "Structural, electronic and magnetic properties of Fe, Co, Mn-doped GaN and ZnO diluted magnetic semiconductors", **A. Alsaad**, Physica B: Condensed Matter, **Volume 440**, 1 May 2014, Pages 1–9.
16. "Optical properties of ZnO related to the dc sputtering power", A. Ahmad , **A. Alsaad**, The European Physical Journal B - Condensed Matter and Complex Systems, July 2006, **Volume 52**, Issue 1, pp 41-46, First online: 06 July 2006.
17. "Optimisation and characterisation of various extraction conditions of phenolic compounds and antioxidant activity in olive seeds, Muhammad H. Alu'datt, Inteaz Alli, Khalil Ereifej, Mohammad N. Alhamad, **Ahmad Alsaad** and Taha Rababeh, Natural Product Research: Formerly Natural Product Letters, **Volume 25**, Issue 9, 2011.
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21. "Structural and magnetic properties of MnN and ScN binaries and their ScN:Mn diluted magnetic semiconductors and Mn_xSc_{1-x}N alloys", **A. Alsaad**, M. Bani-Yassein, I.A. Qattan, A. Ahmad, S.R. Malkawi, Physica B: Condensed Matter, Volume 405, Issue 5, 1 March 2010, Pages 1408–1414.
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44. "*Measurement and Ab-initio Investigation of Structural, Electronic, Optical and Mechanical Properties of Sputtered Aluminum Nitrides Thin Films*", **A. M. Alsaad**, Qais M. Al-Bataineh, I. A. Qattan, A. A. Ahmad, A. Ababneh, Zaid Albataineh, Ihsan A. Aljarrah, Ahmad Telfah, Frontiers in Physics, May 2020, Volume 8, Article 115.

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46. "Optical Band Gap Studies and Refractive Index Dispersion Parameters of Undoped ZnO and Boron-doped ZnO Thin Films: A Novel Derived Mathematical Model from the Experimental Transmission Spectra", **A. M. Alsaad**, Qais M. Al-Bataineh, A. A. Ahmad, Zaid Albataineh, Ahmad Telfah, Optik, June 2020, Volume 211.
47. "Synthesis, Crystallography, Microstructure, Crystal defects and Optical Properties of (Fe-Ni) co-doped ZnO Thin Films prepared by sol-gel technique", **A. M. Alsaad**, A. A. Ahmad, Qais M. Al-Bataineh, A. A. Bani-Salameh, Hadeel A. Ibdah, Issam A. Qattan, Zaid Albataineh, Ahmad Telfah, Materials 2020, 13(7), 1737.
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49. "Kinematics of Photoisomerization Processes of PMMA-BDK-MR Polymer Composite Thin Films", Qais M. Al-Bataineh, A. A. Ahmad, **A. M. Alsaad**, I. A. Qattan, Areen A. Bani-Salameh, Ahmad D. Telfah. Polymers 2020, 12(6), 1275.
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51. "Optical Properties and Photo-isomerization Processes of PMMA-BDK-MR Nanocomposite Thin Films doped by Silica Nanoparticles", **A. M. Alsaad**, Qais M. Al-Bataineh, M. Telfah, A. A. Ahmad, Zaid Albataineh, Ahmad Telfah, Polymer Bulletin (2020).
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55. "Spectroscopic Characterization of Optical and Thermal Properties of (PMMA-PVA) Hybrid Thin Films Doped with SiO₂ Nanoparticles", **A. M. Alsaad**, A. A. Ahmad, Abdul Raouf Al Dairy, Ayah S. Al-anbar, Qais M. Al-Bataineh, Results in Physics 2020 (19).
56. "Theoretical and Experimental Overview of Structural, Dielectric, Crystallographic, Electronic, Optical and Physical Tensors of α -DIPAB and Iodine-doped α -DIPAB Molecular Ferroelectric Crystals", **A. M. Alsaad**, I. A. Qattan, A. A. Ahmad, **Qais M. Al-Bataineh**, Hala I. Al-Abed, Zaid Albataineh, Ahmad Telfah, R. F. Sabirianov, Journal of Electronic Materials, 2020.
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