



Mohammad Anwar Alebrahim
Associate professor/ Applied medical sciences college.
Jordan University of Science and Technology
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EDUCATION

- Ph.D** Fridrich-Schiller Universitat jena, Leibniz Institute of Photonic Technology, Jena-Germany. May 2013
Dissertation: "ATR-FTIR and Raman imaging to study permanent and primary teeth from different places and ages"
Supervisor: Prof. Juergen Popp.
Major: Biophysics & biophotonics
- M.Sc** AL-Albait University, Physics department Dec. 2006
Thesis: "A study of optical properties of PMMA Iodine mixture thin films using spectroscopic ellipsometry"
Major: Physics (Graduated with honors)
- B.Sc** AL-Albait University, Physics department Feb. 2004
Major: Physics

HONORS AND AWARDS

- DAAD** (Deutcher Akademisher Austauschdienst) scholarship January-May 2013
- Academic Award** 2007
Al-Albait University award as ranked the first (Graduated with honors)

RESEARCH EXPERIENCE

- Research Assistant**, Leibniz-Institute for Photonic Technology, Jena, Germany Sep.2009-May 2013
Advisor: Prof. Juergen Popp
PD. Dr. Christoph Krafft
Vibrational Spectroscopy Lab (FTIR & Raman)
- Al-albait University**, 2003 - 2004
Master Student
VASE Lab

TEACHING EXPERIENCE

Jordan University of Science and Technology,

❖ **Associate Professor**, Allied Medical Sciences.

Nov 2024 – Present

❖ **Assistant professor**, Allied Medical Sciences.

Nov 2018 – Nov 2024

- Optics
- Visual optics
- Optics physical and Geometrical
- Community eye care
- Ethics in applied medical career
- Investigative techniques and Instrumentation
- Introduction to radiobiology
- Medical physics
- Dispensing and ophthalmic lenses
- Scientific research methods

Jordan University of Science and Technology,

Sep 2017 – July 2018

❖ **Part time lecturer**, Physics department

- Radiation biology (Phys 441)
- Classical Mechanics II (Phys 312)
- Classical Mechanics I (Phys 311)
- General Physics 101, 102 & 103

United Arab Emirates University,

Jan 2016 - May 2016

❖ **Visiting Faculty**, Physics department

- General Physics 2
- Conceptual Physics

Jordan University of Science and Technology,

Sep 2013 – Jan 2016

❖ **Part time lecturer**, Physics department

- General Physics 101 and 102,
- Phys 103: General physics for medical students
- Classical Mechanics (Phys 311),

Jordan University of science and Technology,

Sep. 2015 – Jan 2016

❖ **Part time lecturer**, Optometry department

- Visual Optics (OPT 203), undergraduate course

- General Physics for nursing students

PUBLICATIONS

Journal Publications

- **Alebrahim, Mohammad A.**, Ahmad A. Ahmad, Lina A. Alakhras, and Qais M. Al-Bataineh. "Self-healing nanocomposite film of polyvinyl alcohol—polyacrylic acid incorporated with iodine." *Journal of Applied Polymer Science* 142, no. 5 (2025): e56454.
- Al-Akhras, M-Ali H., **M. A. Alebrahim**, Ali S. Ba Rajjash, H. M. Hammouri, M. S. Mousa, Tariq AlZoubi, Ghaseb N. Makhadmeh, and Carlos J. Tavares. "Ancient and modern bone diagnosis: Towards a better understanding of chemical and structural feature alterations." *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* 326 (2025): 125259.
- **Alebrahim, Mohammad A.**, Ahmad A. Ahmad, A. B. Migdadi, and Qais M. Al-Bataineh. "Physicochemical characterizations of polyethylene oxide/polyaniline nanocomposite films incorporated with titanium nanoparticles." *Journal of Materials Science: Materials in Electronics* 35, no. 17 (2024): 1148.
- Al-Bataineh, Qais M., Ahmad A. Ahmad, Lina A. Alakhras, **Mohammad A. Alebrahim**, and Ahmad Telfah. "Bicontinuous oxide heterostructures based on mixed zinc oxide/tin dioxide film for high photoconductivity." *Optical Materials* 156 (2024): 115948.
- **Alebrahim, Mohammad A.**, Ahmad A. Ahmad, Lina A. Alakhras, and Qais M. Al-Bataineh. "Magnesium-doped zinc oxide film for hydrogen production from wastewater." *Materials Chemistry and Physics* 320 (2024): 129440.
- **Alebrahim, Mohammad A.**, Ahmad A. Ahmad, A. B. Migdadi, and Qais M. Al-Bataineh. "Localize surface plasmon resonance of gold nanoparticles and their effect on the polyethylene oxide nanocomposite films." *Physica B: Condensed Matter* 679 (2024): 415805.
- **Mohammad A. Alebrahim**, Ahmad S. Al-Hiyasat, Musab N. Shakhatreh "Ultraviolet Transmittance of Daily and Monthly Disposable Contact Lenses with UV Filters and Compliances with American National Standard Institute (ANSI) Classification", *Jordan Journal of Physics*, Vol. 17 No 5 (2024).
- **Mohammad A. Alebrahim**, M-Ali H. Al-Akhras, Ahmad S. Al-Hiyasat, Ali S. Ba Rajjash, M. S. Mousa, Abdulla Al Darayseh, "Microstructural Changes of Bone after Soft Tissue Removal: ATR-FTIR and XRD Spectroscopies", *Journal of Spectroscopy*, vol. 2023, Article ID 6599002, 8 pages, 2023. <https://doi.org/10.1155/2023/6599002>
- **Alebrahim MA**, Bakkar MM, Al Darayseh A, Msameh A, Jarrar D, Aljabari S, Khater W. Awareness and Knowledge of the Effect of Ultraviolet (UV) Radiation on the Eyes and the Relevant Protective Practices: A Cross-Sectional Study from Jordan. *Healthcare*. 2022; 10(12):2414. <https://doi.org/10.3390/healthcare10122414>

- **Mohammad A. Alebrahim** & May M. Bakkar (2022) The usefulness of optics-based courses for optometry and vision science alumni: a cross-sectional online survey, *Annals of Medicine*, 54:1, 1423-1431, DOI: [10.1080/07853890.2022.2076899](https://doi.org/10.1080/07853890.2022.2076899)
- **Alebrahim, Mohammad A.**, Ahmad S. Al-Hiyasat, and Ali S. Ba Rajjash. "Effect of Exposure to Acidic Food Items on Dentin Characteristics: An ATR-FTIR Study." *Advances in Materials Science and Engineering* 2022 (2022).
- Al-Hiyasat, Ahmad S., Hamza S. El-Farraj, and **Mohammad A. Alebrahim**. "The effect of calcium hydroxide on dentine composition and root fracture resistance of human teeth: An in vitro study." *European Journal of Oral Sciences* 129.4 (2021): e12798.
- **M. Anwar Alebrahim**, C. Krafft, W. Sekhaneh, B. Sigusch, J. Popp. "ATR-FTIR and Raman imaging of primary and permanent teeth". *Biomedical Spectroscopy and Imaging*; 3, P 15-27, 2014
- Ahmad Abu-Baker, Wassef Sekhaneh, Atef Shiyab, Jan Dellith, Andy Scheffel **M. Anwar Alebrahim**, Jürgen Popp. Analytical investigation of five Roman Pb- based scale weights. *MEDITERRANEAN ARCHAEOLOGY & ARCHAEOLOGY*, 14, No1, P 181- 190, 2013

Conference Papers

- M-Ali H. Al-Akhras, Mohammad-Khair Qaseer, B. A. Albiss, **M. Anwar Alebrhim**, Umar S. Gezawa . Investigation of composition and structure of spongy and hard bone tissue using FTIR spectroscopy, XRD and SEM. *IOP conference series: Materials Science and Engineering* 305 (1), 012010, 2018
- **M. Anwar Alebrahim**, C. Kraft, J. Popp. "Raman Imaging to study structural and chemical features of dentin enamel junction". *IOP conference series: Materials Science and Engineering* 92, 2015.

CONFERENCES

- Oct 11 – Oct17 2023: ¹³th International Advances in Applied Physics & Materials Science Congress & Exhibition (APMAS 2023 Fethiye - Mugla, Turkey).
- Oct 13 – Oct19 2022: ¹²th International Advances in Applied Physics & Materials Science Congress & Exhibition (APMAS2022 Fethiye - Mugla, Turkey)
- April 28 – May 1 2019: International Conference on Research in Education and science, Izmir, Turkey
- 10 – 13 July 2017: International conference on advanced materials, Jordan University of Science and Technology, Irbid, Jordan
- 27 – 29 April 2015: International conference on advanced materials, Jordan University of science and Technology, Irbid, Jordan
- 3– 5 April 2014: Humboldt College Jordan 2014, Building International Networks for

Enhancement of Research in Jordan, German Jordanian University

- 28 – 29 Sep 2012: Centrum für internationale Migration und Entwicklung (CIM), Frankfurt Am Mein, Germany.
- 5 – 7 Oct 2010 doktoranden symposium zur krebsforschung , Dornburg, Germany.

PROFESSIONAL TRAINING WORKSHOP

- Training Course, 13-14 Oct 2022: website creating and hosting on JUST server. JUST University
- Training Course, 17-19 Dec 2019: Quality of Online Courses- Applying the Quality Matters Rubric. JUST University
- Training Course, 9-12 Dec 2019: Online Learning Design. JUST University
- Training Course, 25-26 Sep 2019: Media Education. JUST University
- Training Course, 6 Oct 2015: Reality and ambition of scientific research in the Jordanian academic institutions, Amman, Jordan
- Training Course, 5 Oct 2015: Sample preparation and particle sizing in industry and research laboratories, Amman, Jordan

RECENT RESEARCH PROJECTS (FUNDED AND/OR APPROVED BY J.U.S.T)

- Relevance of optics-based courses to optometry practice among optometry Alumni in Jordan: a cross sectional survey. Approved (2020). Principal investigator.
- ATR-FTIR Spectroscopy and X-ray Diffraction to Study Permanent and Primary Teeth Erosion. Approved (2020). Principal investigator.
- Knowledge and attitudes regarding ultraviolet light exposure and ocular protective behaviors in Jordan. Approved (2021). Principal investigator.
- Perception and Awareness of Refractive Errors Among Undergraduate Students in Jordan universities. Approved (2023). Principal investigator.
- Job satisfaction and its associated factors among optometrists in Jordan: a cross sectional study. Approved (2023). Principal investigator.
- Theoretical Study of Localize Surface Plasmon Resonance of Gold Nanoparticles Using Mie Theory. Approved (2023). Principal investigator.

- Physical and Chemical Characterization of complex Nanocomposites films based on Polyethylene Oxide (PEO) and Polyaniline (PANI) doped by Titanium Nanoparticles. Approved (2023). Principal investigator.

COMMITTEES AND PROFESSIONAL ACTIVITIES

Faculty of Applied Sciences Committees

- Member, community service committee
- Member, Library committee
- Member, quality assurance of academic courses committee

Department of Allied Medical Sciences Committee

- Department representative, Faculty of applied medical sciences
- Member, program curricula committee
- Member, media committee
- Member, Community services committee
- Member, library committee
- Member, quality assurance of academic courses committee
- Member, the strategic planning committee

RESEARCH INTEREST

- **Biomedical & Dental Materials:** Spectroscopic (ATR-FTIR, Raman) and structural (XRD, SEM) analysis of calcified tissues (bone, dentin, enamel) and biomaterials for tissue engineering and dental applications. Characterization of calcified tissues (Dentin, Enamel, Bone).
- **Advanced Nanocomposites & Smart Materials:** Synthesis, characterization, and applications of polymer-based nanocomposites doped with nanoparticles for self-healing, optoelectronic, and plasmonic properties. Synthesis and characterization of hydroxyapatite nanoparticles.
- **Sustainable Materials for Energy & Environment:** Design of photocatalytic materials for wastewater treatment and renewable energy solutions

OTHER QUALIFICATIONS

- Extensive knowledge in:
- Vibrational spectroscopy/ Imaging& mapping (Raman and FTIR).
- Attenuated Total Reflectance (ATR).
- X-ray diffraction (XRD), X-ray fluorescence (XRF).
- Scanning electron microscope (SEM) and energy dispersive X-Ray analysis (EDX).
- Variable angle spectroscopic ellipsometry(VASE).

REFERENCES

Prof. Nihaya Al-shyab, PhD, RN

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