

**Dr. Inshad Jum'h**  
**PhD (Physics – Nanomaterials)**

Associate Professor/School of Basic Sciences and Humanities  
German-Jordanian University (GJU)

Email: [inshad.yousef@giu.edu.jo](mailto:inshad.yousef@giu.edu.jo)

P.O. Box 35247

Amman 11180 JORDAN

Tel.: 00962 64294242

Mobile:00962790898182



### Summary of knowledge and skills

My research aims at preparing and characterizing functional nanostructured materials for advanced applications. I focus on investigating the structure and morphology at the nanoscale of different nanostructured materials for environmental application. My scientific research has resulted in the publication of 30 papers in reputable international journals. In view of these research activities, I was awarded five scientific and educational projects funded by national and international agencies. I took a leading role in these projects (in the field of nanomaterials for environmental application 2013-2021), ensured the effective management of these projects (set goals, scientific results and ensured budgets and performance targets). I have an excellent experience on electronic bulk and interface properties of organic, inorganic, and biological materials using various Scanning Probe Microscopy techniques (SPM), such as, STM, AFM, EFM. Moreover, I am working in various techniques for nanoparticles production and characterization, such as, X-Ray Photoelectron Spectroscopy (XPS), Scanning Electron microscopy (SEM) and Transmission Electron Microscope (TEM). My research activities also include developing Boron-Doped-Diamond (BDD) electrodes for wastewater treatment, water splitting and other essential applications in oxygen demand regime in the field of electro-physical chemistry as well as studying the adsorption and photocatalytic properties of nanomaterials for the removal of contaminants from wastewater.

### Education and Certificates:

University	Major	Degree
University of Erlangen-Nuremberg, Germany	Physics	PhD-Doctor in Natural Science
Jordan University of Science and Technology, Jordan	Physics	Master of Science
Yarmouk University, Jordan	Physics	Bachelor of Science

## Funded projects

1. Coordinator and principal investigator (PI) of the Project entitled "A Novel Antimicrobial polymeric Nanomaterials for Antifouling water Filtration Membrane using Controlled Doping with Nano cobalt Cerium Dioxide (CeO<sub>2</sub>:Co)", Funded by: DAAD grant, German-Arab Transformation Partnership, Programme Line 4, Germany, 2019-2021.
2. Partner and Co-investigator (Co-I) of the Project entitled "A promising hybrid anticancer drug based on a stimulated physicochemical conjugation of a novel anticancer with gold nanoparticle", Funded by :Scientific Research Support Fund (SRF), Jordan. 2018-2022.
3. Coordinator and principal investigator (PI) of the Project entitled "Novel magnetic nanoparticle doped nanofiltration polymeric membranes for heavy metal removal from wastewater". Funded by: DAAD grant, German-Arab Transformation Partnership, Programme Line 4, Germany, 2015-2018.
4. Coordinator and principal investigator (PI) of the Project entitled "Polymeric nanocomposites doped with magnetically aligned nanoparticles for monovalent and multivalent ion rejection and electromagnetic wave polarizer". Funded by :Scientific Research Support Fund (SRF), Jordan, 2015-2018.
5. Coordinator and principal investigator (PI) of the Project entitled "Manufacturing of Magnetite Magnetic Nano-particles, Magnetic Liquids and Magnetic Lubricants". Funded by: German Jordanian University Seed Grant, 2013-2016.
6. Partner and Co-investigator (Co-I) of the Project entitled "Joint Master program named as Excellence in Nanoscience Education for the MENA Region, XNEM". Funded by: EU Tempus grant, 2013-2017.

## Awards and fellowships

1. Award            The best Paper Award is presented to an outstanding paper presented at the 2nd International Conference on INDUSTRY 4.0 ANDARTIFICIAL INTELLIGENCE (ICIAI 2021), Tunisia, Sousse, 2021
2. Award            The first prize in the distinguished exhibition on the occasion of the International Day for Women and Girls in Science.EU-program "Support to Research, Technological Development and Innovation in Jordan-Phase II (SRTD II)". 2017
3. Award            The best poster prize 2017 from Physics Scripta for the quality of work presented at the international conference Fontiers in Theoretical and Applied Physics-UAE 2017, United Arab Emirates,
4. Scholarship     The Mobility Grant, The EU-JordanNet II project, Enhancement of Jordan-European S&T Partnerships at ISAS Leibniz-Institute for Analytical science), Dortmund Germany. 2014
5. Fellowship     DFG. Scientific Award for research. University of Erlangen-Nuremberg, Germany. 2013
6. Scholarship     DAAD Award for PhD, Erlangen-Nuremberg University, Germany 2008

### Academic History and Administrative positions:

Title of the Job	Employer	Period
Associate Professor	German Jordanian University	2018-Present
Exchange coordinator of International Office	German Jordanian University	2018
Vice Dean for School of Basic Sciences and Humanities	German Jordanian University	2017-2018
Assistant Professor	German Jordanian University	2012-2018

### Research Stay abroad:

March 2019	participating in the International DAADn Alumni-Seminar "Applied Engineering for Smart Integration of Renewable Energy in Value Chains in Developing Countries" at the University of Kassel in Witzenhausen (24. – 31.03.2019) and the subsequent visit of the "Hannover Messe 2019 " in Hannover (01.04. – 06.04.2019).
Summer 2014, 2015, 2016, 2017, 2018 and 2019	Research stay, ISAS (Leibniz-Institute for Analytical science), Dortmund Germany.
Summer 2013	Research stay, Institute of Metals Science and Technology, Erlangen- Nuremberg University, Germany.
Summer 2012:	Visiting scientist, physics department III, Erlangen-Nuremberg University, Germany.
2008-2011	PhD student at the University of Erlangen-Nuremberg, Germany (2011) with Prof. Dr. Paul. Mueller

### National and International Committees Memberships

- German Physical Society (**DPG**) (2009 - now)
- The Centre for International Migration and Development (**CIM**), Germany (2011-now)
- The Middle East Network on Innovative Teaching and Learning (**MENIT**) supported by **giz** (Deutsche Gesellschaft Fur Internationale Zusammenarbeit (**GIZ**) GmbH

## Courses Taught:

**Undergraduate Courses:** Classical Mechanics, Electricity and Magnetism, Physics for medicine, Physics for Architecture, Applied Math for Engineers, and Physics labs.

**Graduate Courses:** Nano-science master course in fabrication and characterizations of nano-structural materials.

## Supervision of Graduate students (Theses and Dissertations):

- Co-advisor to PhD student at the Jordan university. Dept of Physics. Thesis title "Novel Polyaniline/ $\text{Co}_x\text{Fe}_{3-x}\text{O}_4$  Nanocomposites for Thermoelectric and Optical Sensor Materials. Student Name Mahmoud Al Garram. Graduated in: 2021.
- Co-advisor to M.Sc student at Jordan University of Science and Technology. Dept of Chemical Engineering. Thesis title " PHOTOCATALYTIC DEGRADATION OF ACID ORANGE 7 EMPLOYING IRON NICKEL OXIDE-DOPED TITANIUM DIOXIDE NANOPARTICLES AND ATTENUATED INTERMOLECULAR BONDING". Student Name Rashed Nawwaf Abu-Aleqa. Graduated in: Aug 2021.
- External examiner to M.Sc student at Jordan University of Science and Technology. Dept of Chemical Engineering. Thesis title " ELECTROCHEMICAL DEGRADATION OF DIFFERENT CHEMICAL STRUCTURE ANTIBIOTIC FAMILIES USING BORON-DOPED DIAMOND ELECTRODE AND ATTENUATED POLARIZATION IN AQUEOUS SOLUTIONS". Student Name Safaa Abdalla Alsalman. Graduated in: Aug 2021.
- Co-advisor to M.Sc student at Jordan University of Science and Technology. Dept of Physics. Thesis title " SYNTHESIS OF  $\text{TiO}_2/\text{Fe}_3\text{O}_4$  NANOSTRUCTURES FOR WATER TREATMENT APPLICATIONS". Student Name Wajdi Bani hani . Graduated in: Oct 2019.
- External examiner to M.Sc student at the Jordan university of science and technology. Dept of Physics. Thesis title High resolution  $^1\text{H}$  NMR studies to investigate the kinatic and the mechanism of the dissociation, Ionization and the acidity of the fluoroquinolone antibiotics (Ofloxacin) in body fluids and biological membranes". Student Name Haya Alshheamat. Graduated in: Jan 2019.

- Co-advisor to M.Sc student at Mu'tah University. Dept of Physics. Thesis title "Ordered metal nanoparticles - polymethylmethacrylate/Polyaniline (PMMA/PANI) nanocomposite as an ultra-grade organic ultraviolet (UV) filter. Student Name Mahmoud Mhawish. Graduated in: Oct 2018.
- Co-advisor to M.Sc student at Jordan University of Science and Technology. Dept of Physics. Thesis title " TETHERING THE SILVER NANOPARTICLES (AGNPS) WITH FLUORINE BASED ANTIBIOTICS (OFLOXACIN) FORMING AGNPS-OFLOXACIN AS A NOVEL WIDER SPECTRAL RANGE OF ANTIMICROBIAL AND CHARACTERIZING THE COMPOUND USING HIGH RESOLUTION 1H NMR AND UV-VIS SPECTROSCOPY. Student Name Mahmoud Telfah. Graduated in: Aug 2018.
- External Examiner to M.Sc student at the Jordan University of Science and Technology. Dept of Physics. Thesis title: "Optical, electrical and morphological properties of polyaniline (PANI)-Plt(Ethylene Oxide)(PEO)/AGNPs-AgNO<sub>3</sub> nanocomposites thin films coated on quartz surface activated with oxygen plasma" . Student Name: Mus'ab Shakhatreh. Graduated in: Aug 2018.
- External Examiner to M.Sc student at the Jordan University of Science and Technology. Dept of Physics. Thesis title: "Modleing of ZnO nanommembranes as capacitive pressure sensors using comsol multiphysics software" . Student Name: Haifa Al-Turani. Graduated in: May 2016.

#### List of Publications:

1. **Inshad Jum'h**, Ahmad Telfah, Marwan S. Mousa, Mais Jamil A. Ahmad, Carlos J. Tavares, Roland Hergenröder, "XPS and UV-Vis Studies of Nanoparticle Positioning Effect on Optical, Morphological and Structural Properties of Metal-Polymer Nanocomposites" Journal of Applied Polymer Science (2022) Accepted
2. **Inshad Jum'h**, Yousef Al-Abdallat, Ehab M. AlShamaileh, Mohammad D. AL-Tahat, and Ahmad Telfah, "Polypyrrole-Metal Oxide-CarbonNanocomposite Films Corrosion Enhancementon Industrial Steel". Conference Series Atlantis Press, (2022) Accepted
3. Ahmad A. Ahmad, Areen A. Bani-Salameh, Qais M. Al-Bataineh, **Inshad Jum'h**, Ahmad D. Telfah. „Optical, structural and morphological properties of synthesized PANI-CSA-PEO-based GaN nanocomposite films for optoelectronic applications“ Polymer Bulletin, <https://doi.org/10.1007/s00289-021-04033-w>, (2022).
4. M Al-Gharram, **I Jum'h**, A Telfah, M Al-Hussein,“ Highly crystalline conductive

electrodeposited films of PANI-CSA/CoFe<sub>2</sub>O<sub>4</sub> nanocomposites“ Colloids and Surfaces A: Physicochemical and Engineering Aspects 628, 127342, (2021)

5. A Abdelhay, **I Jum'h**, A Albsoul, D Abu Arideh, B Qatanani, "Performance of electrochemical oxidation over BDD anode for the treatment of different industrial dye-containing wastewater effluents“, Water Reuse 11 (1), 110-121, (2021)
6. Mokhtari, D. J., **Inshad Jum'h**, H. Baaziz, Z. Charifi, T. Ghellab, Ahmad Telfah, and Roland Hergenröder. "Structural, electronic, magnetic and thermoelectric properties of inverse Heusler alloys Ti<sub>2</sub>CoSi, Mn<sub>2</sub>CoAl and Cr<sub>2</sub>ZnSi by employing Ab initio calculations." *Philosophical Magazine* (2020): 1-26.
7. Alsaad, A. M., Qais M. Bataineh, A. A. Ahmad, **Inshad yousef Jum'h**, Nabil Alaqtash, and Areen Bani-Salameh. "Optical properties of transparent PMMA-PS/ZnO NPs polymeric nanocomposite films: UV-Shielding applications." *Materials Research Express* (2020).
8. Jameel, Dler Adil, John Fredy Ricardo Marroquin, Mohsin Aziz, Noor Alhuda Al Saqri, **Inshad Jum'h**, Ahmad Telfah, Mohamed Henini, and Jorlandio Francisco Felix. "Investigation of the effects of GaAs substrate orientations on the electrical properties of sulfonated polyaniline based heterostructures." *Applied Surface Science* 504 (2020): 144315.
9. **Inshad Jum'h**, Marwan S. Mousa, Mahmoud Mhawish, Suhad Sbeih, Ahmad Telfah, "Optical and structural properties of (PANI-CSA-PMMA)/NiNPs nanocomposites thin films for organic optical filters." *Journal of Applied Polymer Science* (2019): 48643.
10. Abdelhay, Arwa, **Inshad Jum'h**, Abeer Albsoul, and Dina Al Tarazi. "Dairy wastewater remediation using electrochemical oxidation on boron doped diamond anode (BDD)." *DESALINATION AND WATER TREATMENT* 171 (2019): 177-182.
11. Yousef Al-Abdallat, **Inshad Jum'h**, Abeer Al Bsoul, Rami Jumah, Ahmad Telfah, "Photocatalytic Degradation Dynamics of Methyl Orange Using Coprecipitation Synthesized Fe<sub>3</sub>O<sub>4</sub> Nanoparticles." *Water, Air, & Soil Pollution* 230, no. 12 (2019): 277.
12. **I. Jum'h**, S. Sâad essaoud, H. Baaziz, Z. Charifi, A. Telfah, Electronic and magnetic structure, elastic and thermal properties of Mn<sub>2</sub>-based full Heusler alloys, *J Supercond Nov Magn*, DOI 10.1007/s10948-019-5095-3, 2019.
13. Abeer Al Bsoul, Mohammad Hailata, Arwa Abdelhay, Muhammad Tawalbeh, **Inshad Jum'h**, Khalid Bani-Melheme, Treatment of olive mill effluent by adsorption on titanium oxide nanoparticles, *Science of The Total Environment*, Vol 688, 20, pp 1327-1334, 2019.
14. Riad Ababneha, Ahmad Telfah, **Inshad Jum'h**, Mohammad Abudayah, Yousef Al-Abdallat, Jörg Lambert, Roland Hergenröder, 1H NMR spectroscopy to investigate the kinetics and the mechanism of proton charge carriers ionization and transportation in hydrophilic/hydrophobic media: Methyl sulfonic acid as a protonic ion source in

water/alcohol binary mixtures, *Journal of Molecular Liquids*, Vol 265, pp 621-628, **2018**.

15. Ahmad Telfah, Mousa Jafar, **Inshad Jum'h**, Mais Jamil, Jörg Lambert, Roland Hergenröder, Identification of relaxation processes in pure polyethylene oxide (PEO) films by the dielectric permittivity and electric modulus formalisms, *Polymer for Advance Technology*. Vol 29, pp 1974–1987, **2018**.
16. **Inshad. Jum'h**, Arwa. Abdelhay, Ahmad. Telfah, M-Ali Al-Akhras, Akeel. Al-Kazwini, Stefan. Rosiwal, Veratric acid removal from water by electrochemical oxidation on BDD anode. *Materials Science and Engineering Journal*. Vol 305, **2018**.
17. **Inshad Jum'h**, Ahmad Telfah, Jörg , Lambert, Mikheil gogiashvili, Huessein Altaani, Roland Hergenröder, <sup>13</sup>C- and <sup>1</sup>H-NMR measurements to investigate the kinetics and the mechanism of acetic acid (CH<sub>3</sub>CO<sub>2</sub>H) ionization as a model for organic acids dissociation dynamics for polymeric membrane water filtration, *Journal of Molecular Liquids*, Vol 227 pp 106–113, **2017**.
18. **I. Jum'h**, M.S. Abd EL-Sadek, H. AL-Taani, I.S. Yahia, G. Karczewski, Influence of Illumination on the Electrical Properties of p-(ZnMgTe/ZnTe:N)/CdTe/n-(CdTe:I)/GaAs Heterojunction Grown by Molecular Beam Epitaxy (MBE), *Journal of Electronic Materials*, Vol. 46, No. 2, **2017**.
19. **Inshad Jum'h**, Arwa Abdelhay, Hussein Al-Taani, Ahmad Telfah, Mohammad Alnaief, Stefan Rosiwal, Fabrication and application of boron doped diamond BDD electrode in olive mill wastewater treatment in Jordan, *Journal of Water Reuse and Desalination*, 7 (4), 502-510, **2017**.
20. **I. Jum'h**, M. AL-Addous, H. AL-Taani, M.S. ABD El-Sadek, N. Ayoub. Effect of Boron Concentration on Nano-crystalline Diamond Deposited on Niobium Substrates, *Digest Journal of Nanomaterials and Biostructures* 12 (2), 589-593, **2017**.
21. H. Al-Taani, **I. Jum'h**, M.S. Abd El-sadek, V. V. Dremova, Super Sharp-Metal Tips for Combined Scanning Tunneling and Force Microscopy Based on Piezoelectric Quartz Tuning Fork Force Sensors, *Digest Journal of Nanomaterials and Biostructures*, Vol. 12, No. 1, p. 47 – 51, **2017**.
22. Arwa Abdelhay, Abeer Al Bsoul, Amani Al-Othman, Nada M Al-Ananzeh, **Inshad Jum'h**, Ahmed A Al-Taani, Kinetic and thermodynamic study of phosphate removal from water by adsorption onto (*Arundo donax*) reeds, *Adsorption Science & Technology*, Vol 36, pp. 46-61, **2017**.
23. Abdelhay, Arwa, **Jumh Inshad**, Abdulhay, Enas, Al-Kazwini, Akeel, Alzubi, Mashaël. Anodic oxidation of slaughterhouse wastewater on boron doped diamond: process variables effect. *Water Science and Technology*. Vol 76, pp 3227-3235, **2017**.
24. **I. JUM'H**, W. AL Sekhaneh, H. AL-Taani, B. A. Albiss, Preparation and characterization of high quality single walled carbon nanotube using ARC discharge technique, *Digest Journal of Nanomaterials and Biostructures*, Vol. 11, No. 2, pp. 517 – 523, **2016**.



25. **Inshad Jum'h**, Borhan AlBiss, Slava.dremova, Production of low-cost, high quality graphene and few layered graphene (FLG) on conductive substrate, Digest Journal of Nanomaterials and Biostructures, Vol. 11, No. 1, pp. 277 – 282, **2016**.
26. V. V. Dremova, b, **I. Jum'h**, H. A. harramova, b, and P. H. Müllerd, A Method for Manufacturing a Probe for a Combined Scanning Tunneling and Atomic Force Microscope on the Basis of a Quartz Tuning Fork with a Supersharpened Metal Tip, Instruments and Experimental Techniques, Vol. 56, No. 5, pp. 584–588, **2013**.
27. N. Fischer, M. Alam, **I. Jum'h**, M. Stocker, N. Fritsch, V. Dremov, F. Heinemann, N. Burzlaff, P. Müller, trans-1,2-Bis(N-methylimidazol-2-yl)ethylene: Towards Building Block for 2D Fabrics and MML-Type Molecular Strands, Chem. Eur. J. 17,9293–9297, **2011**.
28. M. Gharaibeh, B. A. Albiss, **I. Jumah**, and I. Obaidat. Effective incorporation of nanoceria into polycrystalline MgB<sub>2</sub>. J. Appl. Phys 107, 063908, **2010**.
29. B. A. Albiss, W. Sakhaneh, **I. Jumah**, I. Obaidat, NO<sub>2</sub> Gas Sensing Properties of ZnO/Single-Wall Carbon Nanotube Composites. Sensors Journal, IEEE 10, 1807 – 1812, **2010**.

**Invited speeches and Seminar Participation-Meetings, Conference and workshops:**

1.	<b>Conference:</b> Organizing committee of the international conference on INDUSTRY 4.0 AND ARTIFICIAL INTELLIGENCE (ICIAI 2021), Tunisia, Sousse 2020 and 2021.
1.	<b>Seminar:</b> participating in the International DAADn Alumni-Seminar “Applied Engineering for Smart Integration of Renewable Energy in Value Chains in Developing Countries” at the University of Kassel in Witzenhausen (24. – 31.03.2019) and the subsequent visit of the "Hannover Messe 2019 " in Hannover (01.04. – 06.04.2019).
2.	<b>Conference:</b> Organizing committee of the international conference on current nanotechnology and its Applications (ICCNA2018) at Jordan university of science and technology 2018.
3.	<b>Seminar:</b> “Return or Stay” organized by the Centre for International Migration and Development (CIM) on Jordanian and Palestine, from 06.04. - 08.04.2018 in Berlin.
4.	<b>Conference:</b> the 2nd International Conference on Advanced Materials (ICAM-2017) at Jordan university of science and technology- Jordan 2017.
5.	<b>Conference:</b> International conference Frontiers in Theoretical and Applied Physics-UAE 2017, United Arab Emirates, February 2017.



6.	<b>Workshop:</b> At the School of Physics and Astronomy at Nottingham University 2016.
7.	<b>Workshop:</b> "Nanotechnology in Heavy Metal Removal and Water Treatment and scientific day of nanotechnology" in the fram work of a Collaboration between German Jordanian University and Jordan University of Science and Technology with the Leibniz Institute for Analytical Science-ISAS-e.V. from Dortmund, Germany, 26–28 April 2016.
8.	<b>Conference:</b> the International Conference Advanced Materials (ICAM2015), Jordan University of Science and Technology, Irbid, Jordan. April 2015.
9.	<b>Workshop:</b> "Heavy Metal Removal and Water Treatment" within the Collaboration Project Between German Jordanian University and Leibniz Institute for Analytical Science-ISAS-e.V. at German Jordanian University Campus, October 2015.
10.	<b>Conference:</b> International conference in Cairo "Network conference “Where do we go from here? – Perspectives on Equal Opportunity Policies at Egyptian and German Universities”. Cairo University 2014.
	<b>Seminar:</b> International Summer School " <b>Gender in Teaching</b> ", Campus der TU Berlin in El Gouna 2014.
11.	<b>Conference:</b> “One-dimensional coordination polymers: towards molecular wires”, DPG March meeting, Dresden. Germany 2011.
12.	<b>Meeting:</b> “Combined AFM/STM for imaging of nanostructures under ambient conditions”, Klausurtagung des Interdisciplinary Center for Molecular Materials (ICMM) Universität Erlangen, Staffelstein, 2010.
13.	<b>Conference:</b> “Investigation of Hybrid nanostructures using AFM/STM based on tuning fork sensors”, DPG March meeting, Regensburg, Geramny, 2010.

