

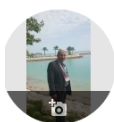


Curriculum Vitae

Mohammad Salameh Sweilem Al-harshshah

Personal Information

Work Addresses: Jordan University of Science and Technology, Faculty of Engineering. Department of Chemical Engineering P. O. Box 3030, Irbid 22110 Jordan.	Telephone (work)	0096227201000/Ext:22357
	(Mobile)	00962799299285
	Fax	0096227095123
	E-mail Address	msalharshshah@just.edu.jo harshshahm@yahoo.com
	Nationality	Jordanian
	Date of Birth	November 1970
	Place of Birth	Rehab, Al-Mafraq



Mohammad S. Al-Harshshah



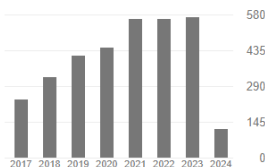
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<input type="checkbox"/> A novel method for maximizing durum wheat yield using silica nanoparticles KK Al-Zboon, NM Bani-Hani, JA Al-Tabbal, MS Al-Harshshah, ... International Journal of Environmental Science and Technology, 1-20		2024

Major Achievements

- Annual Research Award** by the Midlands Countries Institution of Engineers/UK for publishing and presenting the best quality research work during the academic year 2004/2005 (Award Date:23/09/2005)
- SChEME annual Best Thesis Award** by the School of Chemical, Environmental Engineering/University of Nottingham/UK (12/07/2006)
- Scopus Certificate** in recognition for contribution to the science, Amman, 1st of April, 2009
- One year employment promotion** at Al-Hussein Bin Talal University/Jordan on 25/11/2009 for the high publication rate and quality of research
- Early Promotion to Associate Prof.** At Al-Hussien Bin Talal University (7/7/2010)
- Winner of Custodian of the “Two Holly Mosques King Abdullah bin Abdelaziz International Award”** for Translation of Book “Metals from Ores: An introduction to extractive metallurgy” into Arabic (500 pages book)
- Publication of several papers which were among the **top 25 for several years**
- Prestigious Award for Distinguished Research, Awarded by Scientific Support Fund at the Ministry of Higher Education** in Jordan for the publication of the article titled by Precipitation treatment of effluent acidic wastewater from phosphate-containing fertilizer industry: characterization of solid and liquid Products published in Separation and Purification Technology,08/2014
- Publishing an article in **Progress in Energy and Combustion Science** journal (impact factor = 27)
- Winer of 12 national awards based on graduation projects of my students**
- Scopus H Index =29; Researchgate RG score= 38.67**

Specialised Experience

Experience (expert level) in several instrumental analysis techniques such ICP-MS, ICP-OES, AAS, TGA, XRD, FTIR, with good knowledge in GC, XRF, SEM and Electroanalytical methods

Education and Qualifications

PhD in Materials and extractive metallurgy from the **School of Chemical, Environmental and Mining Engineering / University of Nottingham/ Nottingham/UK**. From 28/11/2001 to 14/12/2005
Thesis title: Fundamental Investigation into the Microwave Assisted Leaching of Sulphide Minerals.

Master in Electro-Metallurgy of Ferrous Metals from Moscow Institute of Steel and Alloys (University of Technology)/ Moscow/Russia. From 09/1989 to 06/1994
Thesis title: A Study on Slag Refining of Nickel Alloy type 648 from Nitrogen

Academic Rank:

Full Prof. since 07/07/2015

Employment/ Work Experience

10/2023 until now Prof. at the department of Chemical Engineering (ABET Accredited) / Jordan University of Science and Technology

09/2021 to 10/2023: Vice President for Academic and Scientific Affairs at Al Al-Bayt University, Jordan

07/2015 to 09/2021: Prof. at the department of Chemical Engineering (ABET Accredited) / Jordan University of Science and Technology

09/2016 to 3/2017: Vice dean of scientific research at Jordan University of science and technology. Actively participated in rewriting rules to boost scientific research at JUST during that period

09/2016 to 9/2021: member of central tender committee at JUST

02/2012 to 7/2015: Associate Prof. at the department of Chemical Engineering (ABET Accredited) / Jordan University of Science and Technology

09/2010 to 2/2012: Dean of Scientific Research at Al-Hussein Bin Talal University. Involved in writing many regulations and rules in the university specially those related to scientific research

08/2009 to 09/2010: Acting Dean of Scientific Research at Al-Hussein Bin Talal University

09/2008 to 08/2009: Vice Dean of Scientific Research at Al-Hussein Bin Talal University

09/2006 to 09/2008: Chairman of Mining Engineering Department at Al Hussein Bin Talal University, Faculty of Mining and Environmental Engineering (participated in preparation of curriculum)

1/2006 to 10/09/2006: Assistant. Prof. in Mining engineering department at Al Hussein Bin Talal University, Faculty of Mining and environmental Engineering

28/11/2001 to 14/12/2005: PhD student at the University of Nottingham. PhD thesis title is "Fundamental Investigation into the microwave assisted leaching of sulphide minerals

07/1997 to 08/2001: Metallurgical Engineer at the Arab Engineering Industries Company

The main responsibilities were: Metallography and Mechanical testing of the steel casting products, Development of heat treatment programs for various steel casting products, and head of smelting division.

07/1995 to 07/1997: National Multi Engineering Industries Company

I was employed as a Metallurgical Engineer in the copper smelting plant where I was involved in the installation of product line which included shaft furnace, continuous casting machine, rolling machine etc. Later I was appointed as head of the maintenance workshop which served 7 factories

12/1994 to 07/1995 Natural Resources Authority (NRA)

Membership

- 1 Member of the Jordanian Engineering Association From 9/1994 to present
- 2 Member of the Canadian Institute of Mining and Metallurgy (2004-2005)
- 3 Member of the Institute of Materials, Minerals and Mining (2005 to present)
- 4 Member of the Society of Mining, Metallurgy and Mineral Exploration (01/2006 to present)

Research interests:

- 1 Treatment of Plastic materials with Electric Arc Furnace Dust
- 2 Synthesis of nanomaterials and their applications in metal extraction
- 3 Oil shale Processing: combustion and pyrolysis; Microwave pyrolysis of oil shale and tar sand
- 4 Industrial wastewater treatment from phosphate Industry
- 5 Microwave assisted Extraction of Metals
- 6 Leaching of copper minerals (sulphides and oxides)
- 7 Leaching of aluminium from clay minerals
- 8 Microwave drying of materials
- 9 Removal of heavy metals from aqueous solutions
- 10 SO₂ removal from effluent streams
- 11 Industrial waste treatment and utilization

Funded Research Projects

Project title	Funding Institution	Amount of Fund, JD	Status
Microwave Processing of Jordanian oil shale- PI	Al-Hussein Bin Talal University	28,500	completed
Geology and Minerals in Ma'an Area – Co-investigator .	Al-Hussein Bin Talal University	7,100	completed
Investigation into the flow conditions of the hydrocyclone: Co-investigator	Scientific Research Support Fund/ Ministry of Higher Education	41,000	completed
An investigation into the removal of SO ₂ from effluent streams: Novel approach to minimize SO ₂ emission from Jordanian oil shale processing plants: Co-investigator	Al-Hussein Bin Talal University	22,150	completed
	SRTD/ Higher Council for Science and Technology	15000	completed
Treatment of effluent water from phosphate-containing fertilizer industry for reuse and production of useful compounds-phase I, PI	Scientific Research Support Fund/ Ministry of Higher Education and Scientific Research	43500	completed
Extraction of Uranium from phosphoric acid (PI)	King Abdullah II Fund for Development	5000	completed
Investigation into Zn Extraction from EAF Dust by thermal treatments with plastic materials (PVC), PI	King Abdullah II Fund for Development	5600	completed
	Jordan Oil Shale Company	2400	completed
Purification of Kaoline by oxalic acid , PI	King Abdullah II Fund for Development & JOSCO	5000	completed
Effect of chemical treatment on the solvation of Jordanian shale oil, PI	Jordan University of Science and Technology	10000	completed
Treatment of effluent water from phosphate-containing fertilizer industry for reuse and production of useful compounds-phase II, PI	Scientific Research Support Fund/ Ministry of Higher Education and Scientific Research	112000	completed
Removal of Iron from Aluminum Ores (Co-PI)	Abdulhameed Shoman Foundation	15000	completed
Will Jordan become an aluminum producing country? A preliminary Evaluation study, PI	King Abdullah II Fund for Development	5000	completed
Metal extraction from EAFD via pyrolysis leaching process, PI	Jordan University of Science and Technology	105000	completed
Production of biodiesel from waste cooking oil (PI)	King Abdullah II Fund for Development	5000	completed

Utilization of Electric Arc Furnace Dust and Plastic wastes for energy and metal production and saving drinking ground water, PI	EU-SRTD II	30000	completed
Synthesis and Characterization of Novel Magnetic Nanoparticle Composites for Water Treatment Applications and metallurgical applications, Co-PI	EU-SRTD II	30000	completed
Obtaining fuel oil from scrap tires at low temperature and atmospheric pressure, Co-PI	EU-SRTD II	30000	completed
Effect of chemical treatment on the solvation of Jordanian shale oil, PI	Jordan University of Science and Technology	12000	completed
Investigation of iron behaviour during the leaching of electric arc furnace dust- PVC pyrolysis residue, Master thesis Project (PI)	Jordan University of Science and Technology	5800	completed
Magnetic nanoparticles coated by silica for heavy metal extraction (uranium extraction)- Co-PI	King Abdullah II Fund for Development	5000	completed
Treatment of Electric Arc Furnace Dust (EAFD) with Plastic wastes for the recovery of valuable metals: case study on the use of flame retardant materials (PI)	King Abdullah II Fund for Development	5000	completed
Evaluation of the possibility of the production Al compounds from Jordanian kaolin and waste H ₂ SiF ₆ (PI)	Jordan University of Science and Technology	25000	completed
The Use of Nano particles in the production of concrete waterproofing and strengthening materials (Co-PI)	Jordan University of Science and Technology	19700	completed
Comparative study on the adsorption of nanocomposites toward uranium in aqueous solutions (PI)	Jordan University of Science and Technology	6500	completed
Use of waste hexafluorosilicic acid as a silica precursor for silica coated magnetic nanoparticles (PI)	King Abdullah II Fund for Development	5000	completed
Study of barium and barium substituted hexaferrites using co-precipitation method : characterization of crystal structure and magnetic properties (MSc project) (Co-PI)	Jordan University of Science and Technology	6500	completed
Utilization of Solar Energy for Wastewater Treatment (Co-PI)	King Abdullah II Fund for Development	5000	completed
Oxidative thermal treatment of electric arc furnace dust – Polyvinyl chloride mixture (PI)	King Abdullah II Fund for Development	4500	completed
Improved Solar Powered Desalination System Using Phase Change Materials (PI)	Jordan University of Science and Technology	6500	completed
CO ₂ Sequestration in Dead Sea water (PI)	Jordan University of Science and Technology	6500	completed
Experimental study into potential production of Al compounds from Jordanian kaolinite and waste acids from phosphate industries (PI)	Scientific Research Support Fund/ Ministry of Higher Education and Scientific Research	83916	ongoing
Adsorption of gases by geopolymer: case study on CO ₂ adsorption (PI)	Jordan University of Science and Technology	6500	ongoing
Mobile Solar –powered desalination Unit	Wash Project Funded by Unicef	16800	ongoing
Mining Water	German Federal I	14900	ongoing
Total		737466	

Journal Publications

1. Abu-Sbeih, Khaleel; **Al-Harashseh, Mohammad**, Hydroxyl- Terminated Dendrimers with Sulfonimide Linkers as Binders for Metals of Industrial Significance, **Inorganic Chemistry, Submitted**
2. **Mohammad S. Al-Harashseh**, Sabreen Mheidat, Kamel Al-Zboon, Kaolin based geopolymer for CO₂ adsorption; effect of calcination temperature, **Journal of environmental Management, Under review**
3. **Mohammad Al-Harashseh**, Muna Abu-Dalo, Hani Abu Qdais, Yazan Hajeer, Assessing the performance of conventional and nano iron as a water coagulant: a comparative study, **Sustainability, under review**

4. **Mohammad Al-Harshseh**, Aiman Al-Rawajfeh, and Raghad Al-Khatib, Potential storage of CO₂ in Dead Sea water: Case study on the effect of seeding, *Arabian Journal for Science and Engineering*, **Under Review**
5. Al-Zboon, K. K., Bani-Hani, N. M., Al-Tabbal, J. A., **Al-Harshseh, M. S.**, & Haddad, M. A. (2024). A novel method for maximizing durum wheat yield using silica nanoparticles. *International journal of environmental science and technology*. <https://doi.org/10.1007/s13762-023-05434-2>
6. **Al-Harshseh, M.**, & Altarawneh, S. (2024). Thermodynamic analysis on the thermal treatment of spent alkaline batteries-PVC blends under inert conditions. *Case Studies in Chemical and Environmental Engineering*, 9, 100568. Doi: <https://doi.org/10.1016/j.cscee.2023.100568>
7. J.A. Al Tabbal, **Mohammad Al-harshseh**, Jihad Al-Zou'by, Kamel Al-Zboon, and Khalideh Al Bkoor Alrawashdeh, 2023, Silica nanoparticle: Eco-friendly Waste Having Potential for Seed Germination of Wheat (Triticum turgidum L. Var. Sham) Under Salt Stress Conditions, **Waste and Biomass Valorization**, <https://doi.org/10.1007/s12649-023-02338-7>
8. **Mohammad Al-Harshseh**, Sanad Altarawneh, Mohammad Al-Omari, Mohammednoor Altarawneh, Sam Kingman, and Chris Dodds, (2023) Chlorine Fixing Ability of Electric Arc Furnace Dust During the Thermal Degradation of Polyvinyl Chloride under Oxidative Conditions, **Jordanian Journal of Engineering and Chemical Industries (JJECI)**, 6(3), 39-46
9. Ali, L., Sivaramakrishnan, K., Kuttiyathil, M. S., Chandrasekaran, V., Ahmed, O. H., **Al-Harshseh, M.**, & Altarawneh, M. (2023). Prediction of Thermogravimetric Data in the Thermal Recycling of e-waste Using Machine Learning Techniques: A Data-driven Approach. *ACS Omega*. Doi:10.1021/acsomega.3c07228
10. Ali, Labeeb; Sivaramakrishnan, Kaushik; Kuttiyathil, Mohamed Shafi; Chandrasekaran, Vignesh; Ahmed, Oday; **Al-Harshseh, Mohammad**; Altarawneh, Mohammednoor, 2023, Prediction of Sulphur5avimetric data in bromine capture from Brominated Flame Retardants (BFRs) in e-waste treatment using Machine Learning approaches, **Journal of Chemical Information and Modelling**, **63(8)**, 2305-2320
11. Labeeb Ali; Kaushik Sivaramakrishnan; Mohamed Shafi Kuttiyathil; Vignesh Chandrasekaran; Oday H. Ahmed; **Mohammad Al-Harshseh**, Thermo-kinetic Parameters Underlying Co-pyrolysis/-oxidation of Brominated Flame Retardants (BFRs) with Calcium Hydroxide. **Arabian Journal of Chemistry**, **16(3)**, 104540
12. Labeeb Ali, Kaushik Sivaramakrishnan, Mohamed Shafi Kuttiyathil, Vignesh Chandrasekaran, Oday H. Ahmed, **Mohammad Al-Harshseh** and Mohammednoor Altarawneh, 2023, Degradation of tetrabromobisphenol A (TBBA) with calcium hydroxide: a Sulphur-kinetic analysis, **RSC Advances**, 13, 6966–6982
13. **Mohammad S. Al-Harshseh**, Naser Abo Olaem, Omar Tahat, Pressure Leaching of Aluminium from Kaolin by HCl: Experimental and DFT Study, **Hydrometallurgy**, **221**, 106122
14. Aljarrah, M. T., Alboull, A. a. M., **Al-Harshseh, M. S.**, Ashraf, A., & Khandakar, A. (2022). Parametric Study of Gold Nanoparticles Synthesis under Micro-Continuous Flow Conditions. **Molecules**, 27(24), 8651.
15. S Altarawneh, **M Al-Harshseh**, A Buttress, C Dodds, S Kingman, 2022, A Sulphur-kinetic investigation on the thermal degradation of polyvinyl chloride in the presence of magnetite and hematite, **Thermochimica Acta** 718, 179390
16. S Altarawneh, **M Al-Harshseh**, C Dodds, A Buttress, S Kingman, 2022, Thermodynamic, pyrolytic, and kinetic investigation on the thermal decomposition of polyvinyl chloride in the presence of franklinite, **Process Safety and Environmental Protection** 168, 558-569
17. **Mohammad Al-Harshseh**, Mousa Abu-Arabia, Maysam Ahmad , Hasan Mousa (2022), Self-powered solar desalination using solar still enhanced by external solar collector and phase change material, **Applied Thermal Engineering**, <https://doi.org/10.1016/j.applthermaleng.2022.118118>
18. **Mohammad Al-Harshseh**, Sanad Altarawneh, Mohammad Al-Omari, (2022) Selective recovery of zinc and lead from electric arc furnace dust-polyvinyl chloride mixtures via oxidative thermolysis-leaching process, **Hydrometallurgy**, **Volume 212 (105898)**
19. Sanad Altarawneh, **Mohammad Al-Harshseh**, Chris Dodds, Adam Buttress, Sam Kingman, 2022, Thermal degradation kinetics of polyvinyl chloride in presence of zinc oxide, **Thermochimica Acta** 707 (179105)
20. Labeeb Ali, Hussein A. Mousa, **Mohammad Al-Harshseh**, Sulaiman Al-Zuhair, Basim Abu-Jdayil, Mohamed Al-Marzouqi, Mohammednoor Altarawneh, 2022, Removal of Bromine from the non-metallic fraction in printed circuit board via its Co-pyrolysis with alumina, **Waste Management**, 137, 283-293

21. **Mohammad Al-Harashseh**, Sanad Altarawneh, Mohammad Al-Omari, Mohammednoor Altarawneh, Sam Kingman and Chris Dodds, (2021) Leaching behaviour of zinc and lead from electric arc furnace dust – Poly(vinyl) chloride residues after oxidative thermal treatment, **Journal of Cleaner Production**, **328** (129622),
22. Sanad Altarawneh, **Mohammad Al-Harashseh**; Adam Buttress; Chris Dodds; Jose Rodriguez; Sam Kingman. Microwave selective heating of electric arc furnace dust constituents toward sustainable recycling: contribution of electric and magnetic fields, **Journal of Industrial and Engineering Chemistry**, **104**, 521-528, <https://doi.org/10.1016/j.jiec.2021.09.001>
23. Omar Alkhalidy, Adnan Al-Harashseh, **Mohammad Al-Harashseh**, Fawzi Irshaidt. Animal Solid Waste as a Potential Renewable Biomass Energy Sources: Case Study at Al-Mafraq Governorate in the North of Jordan, **Biomass Conversion and Biorefinery**, DOI: 10.1007/s13399-021-01714-4
24. Mohammednoor Altarawneh, Oday H. Ahmed, **Mohammad Al-Harashseh**, (2021) Zhong-Tao Jiang, Bogdan Z. Dlugogorski, A Kinetic Model for Halogenation of the Zinc Content in Franklinite, **Applied Surface Science**, <https://doi.org/10.1016/j.apsusc.2021.150105>
25. **Mohammad Al-Harashseh**, Aiman Al-Rawajfeh, and Raghad Al-Khatib, 2021, Storage of Carbon Dioxide in Dead Sea Water, **Journal of Industrial and Engineering Chemistry**, <https://doi.org/10.1016/j.jiec.2021.04.019>
26. **M Al-Harashseh**, Y Orabi, S Al-Asheh 2021. Comparative study on the pyrolysis and leachability of washed/unwashed electric arc furnace dust-PVC mixtures and their residues, **Journal of Environmental Chemical Engineering**, **9**(4), 105410
27. Qi Zhang; Hui Shang; Wenhui Zhang; **Mohammad Al-Harashseh**, 2021, The influence of microwave electric field on the sulphur vacancy formation over MoS₂ clusters and the corresponding properties: A DFT study, **Chemical Engineering Science**, **234**, 116441
28. Mohannad T. Aljarrah, **Mohammad S. Al-harashseh**, Muna A. Alrebaki, Mohannad Mayyas, 2020, Concentrative Isolation of Uranium Traces in Aqueous Solutions via Resurfaced-magnetic Carbon Nanotube Suspension, **Journal of Environmental Management**, **271**, 110970
29. Mohammednoor Altarawneh, Oday H. Ahmed, **Mohammad Al-Harashseh**, Zhong-Tao Jiang, Nay Ming Huang, Hong Ngee Lim, Bogdan Z. Dlugogorski, 2020, Co-pyrolysis of Polyethylene with Products from Thermal Decomposition of Brominated Flame Retardants, **Chemosphere**, **254**, 126766
30. Mousa Abu-Arabi, **Mohammad Al-Harashseh**, Maysam Ahmad, and Hasan Mousa, (2020), Theoretical Modelling of a Glass-Cooled Solar Still Incorporating PCM and Coupled to Flat Plate Solar Collector, **Energy Storage**, **29**, Article 101372
31. Oday H. Ahmed, Mohammednoor Altarawneh, **Mohammad Al-Harashseh**, Zhong-Tao Jiang, Bogdan Z. Dlugogorski, (2020) Formation of Phenoxy-type Environmental Persistent Free Radicals (EPFRs) from Dissociative Adsorption of Phenol on Cu/Fe and their Partial Oxides, **Chemosphere**, **240** (124921)
32. **Mohammad Al-Harashseh**, Mohannad AlJarrah, Muna Alrebaki, and Mohannad Mayyas, (2020) Nanoionic exchanger with unprecedented loading capacity of uranium, **Separation and Purification Technology**, Volume 238, Article 116423
33. OH Ahmed, M Altarawneh, **M Al-Harashseh**, ZT Jiang, BZ Dlugogorski (2019) Catalytic dechlorination of products from PVC degradation by magnetite (Fe₃O₄), **Applied Surface Science**, **480** (792-801)
34. **Al-Harashseh, M.**, Al-Nu' Airat, J., Al-Otoom, A., Al-Hammouri, I., Al-Jabali, H., Al-Zoubi, M., Abu Al'Asal, S. 2019 Treatments of electric arc furnace dust and halogenated plastic wastes: A review, **Journal of Environmental Chemical Engineering**, **7**(1), Article 102856
35. Adnan Al-Harashseh, Majed Ibrahim, Nouredine Elboughdri, **Mohammad Al-harashseh**, Salah Aljbour (2019) Groundwater vulnerability Mapping of Jordanian phosphate mining area based on Phosphate concentration and GIS: Al-Abiad mine as a case study, **International Journal of Hydrology Science and Technology**, **9** (6), 627-639
36. Kamel AL-Zboon, **Mohammad Harashseh**, (2019) Adsorption of Uranium on the Natural and thermally Activated Zeolitic Tuff: Kinetic, Thermodynamic and Isotherm Studies. **International Journal of Environment and Waste Management**, **24** (1), 21-38
37. **Al-Harashseh M**, Altarawneh M. 2018, Thermodynamic Analysis on the Oxidative Pyrolytic Treatment of Electric Arc Furnace Dust–TBBA Blends, *Oxidation of Metals*. **91**(5), 561-588.
38. Oday H. Ahmed, Mohammednoor Altarawneh, **Mohammad Al-Harashseh**, Zhong-Tao Jiang, Bogdan. Z. Dlugogorski, (2018) Catalytic de-halogenation of alkyl halides by copper surfaces, **Journal of Environmental Chemical Engineering**, **6**(6), 7214-7224

39. Mohammednoor Altarawneh, Anam Saeed, **Mohammad Al-Harshsheh**, Bogdan Dlugogorski, (2019), Thermal Decomposition of Brominated Flame Retardants (BFRs): Products and Mechanisms, **Progress in Energy and Combustion Science**, 70, 212-259
40. M. T. Aljarrah, **Mohammad S. Al-Harshsheh**, M. Mayyas, Muna Alrebaki, 2018, In situ synthesis of quaternary ammonium on silica-coated magnetic nanoparticles and its application for the removal of uranium (VI) from aqueous media, *Journal of Environmental Chemical Engineering*, 6(5), 5662-5669
41. Mousa Abu-Arabi, **Mohammad Al-harshsheh**, Hasan Mousa, Zobaidah Alzghoul, 2018, Theoretical investigation of solar desalination with solar still having phase change material and connected to a solar collector, **Desalination**, 448, 60-68
42. **Mohammad Al-Harshsheh**, Mohannad Aljarrah, Mohammednoor Altarawneh, Fahed Rummanah, and Kameel Abdel-Latif, (2018) Bromine fixing ability of electric arc furnace dust during Thermal degradation of Tetrabromobisphenol: experimental and thermodynamic analysis study, **Journal of Analytical and Applied Pyrolysis**, 134, 503-509
43. Mamdouh Allawzi, **Mohammad Al-Harshsheh** and Hussein Allaboun, 2018, Characterization and leachability propensity of bottom ash from medical waste incineration”, *Water, Air, & Soil Pollution*, 229(5), 153
44. **Mohammad Al-Harshsheh**, Mohannad AlJarrah, Mohannad Mayyas, and Muna Alrebaki, 2018, High-stability Polyamine/amide-functionalized magnetic nanoparticles for enhanced extraction of uranium from aqueous solutions, **Journal of the Taiwan Institute of Chemical Engineers**. 86, 148-157
45. **Al-Harshsheh M.** Thermodynamic Analysis on the Thermal Treatment of Electric Arc Furnace Dust-PVC blends. (2018) **Arabian Journal for Science and Engineering**; 43(11), 5757–5769.
46. Ahmed, Oday; Altarawneh, Mohammednoor; Jiang, Zhong-Tao; **Al-Harshsheh, M**; Dlugogorski, Bogdan, (2018) Recycling of zincite (ZnO) via uptake of hydrogen halides, *Physical Chemistry Chemical Physics*, 20, 1221-1230
47. **Al-Harshsheh M**, AlJarrah M, Al-Otoom A, Altarawneh M, and Kingman S. ,2018, Pyrolysis kinetics of Tetrabromobisphenol A (TBBPA) and –Electric Arc Furnace Dust Mixtures. *Thermochemica Acta*; 660, 61-69.
48. Mohammad A. Batiha, Leema Al-Makhadmeh, **Mohammad S. Al-Harshsheh**, Ibrahim S. Altarawneh, Saleh I. Rawadieh, 2018, The effectiveness of Zn leaching from EAFD using caustic soda, **Water, Air, and Soil Pollution**, 229 (33), 1-10
49. **Mohammad Al-Harshsheh**, Awni Al-Otoom, Muhannad Al-Jarrah, Mohammednoor Altarawneh, Sam Kingman, 2018, Thermal Analysis on the Pyrolysis of Tetrabromobisphenol A and Electric Arc Furnace Dust Mixtures, **Metallurgical and Materials Transactions B** , 49(1), 45-60
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51. **Mohammad Al-harshsheh**, Mousa Abu-Arabi, Zobaidah Alzghoul, Hasan Mousa, 2017, Solar desalination using solar still enhanced by external solar collector and PCM, *Applied Thermal Engineering*, **Applied Thermal Engineering**, Volume 128, 1030-1040
52. **Al-Harshsheh, Mohammad**; Kingman, Sam, Hamilton, Ian (2017), Microwave treatment of electric arc furnace dust with Tetrabromobisphenol A: Dielectric characterization and pyrolysis-leaching, **Journal of Analytical and Applied Pyrolysis**, 128, 168-175
53. Mohannad T Aljarrah, Mohammad Al-Saleh; **Mohammad Al-Harshsheh**, 2017, Fabrication and Dielectric Characterization of Barium Hexaferrite/HMWPE Composite for Energy Storage Applications” **Physica B: Condensed Matter**, Volume 523, 45-51
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55. Hani M. Alnawafleh, **Mohammad S. Al-Harshsheh**, Adnan M. Al-Harshsheh (2016). Leachability of Oil Shale Ash from Isfir Al-Mahata Oil Shale, Southern Jordan. **Journal of Minerals and Materials Characterization and Engineering**, 4, 292-303
56. Munther Kandah, Awni Al-Otoom, **Mohammad Al-Harshsheh**, Raed M. Al-Zoubi, Adnan Al-Harshsheh, (2017) Extracting Oil from used Auto Tires at Low Temperature after Chemical Treatment, **Waste Management**, 61, 307-314
57. Mousa Abu-Arabi, **Mohammad Al-Harshsheh**, Raeda Tashtoush, Khawla Alshayji, Mohammad Okour, (2017) Experimental investigation of a solar desalination with humidification, **Desalination and Water Treatment**, 73, 101-106

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Books and Book Chapter

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- 4 Awni Al-Otoom and **Mohammad Al-Harashsheh** (Editors), (2016). Mineral Processing and Beneficiation, **NAM S&T CENTRE PUBLICATION, NEW DELHI, INDIA**

Conferences

- 1 9th International Conference on Microwave and High Frequency Heating, Loughborough University, UK, September 1-5, 2003. Attendance only
- 2 The Fourth World Congress on Microwave and Radio Frequency Applications. Austin, Texas/USA, November, 7-11, 2004. Oral presentation
- 3 Bio & Hydromet '05 Cape Town, South Africa 14 – 26 March 2005. Paper + oral presentation
- 4 The 15th International Conference on Secondary Ion Mass Spectrometry (SIMS XV), Manchester/UK, September 12-16, 2005, Poster Presentation
- 5 International Oil Shale Conference, Amman-Jordan, November 7-9, 2006, Attendance only
- 6 Fifth Jordanian International Mining Conference, Amman-Jordan, September 3-6, 2007 Paper +oral presentation

- 7 27th Oil Shale conference, Colorado, USA 15-19/10/2007, attendance only
- 8 28th Oil Shale conference, Colorado, USA 13-17/10/2008, Dielectric properties of Jordanian Oil Shales.

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- 10 The International Conference on Materials in Jordan, 9-11 April 2011, The sulphur propensity of El-lajjun Jordanian oil shale ash
- 11 Consultant Meeting on Uranium Extraction from Phosphoric Acid. Uranium Extraction from phosphoric acid using novel nanosized dendrimers (oral presentation), Jordanian Atomic Energy Commission, Amman, Jordan 2-6 May 2011
- 12 Crisis of Scientific Research in Jordanian and Arab Universities, Princess Sumaya University for Technology in collaboration with TEMPUS project Sermanteq, Amman, Jordan, 8-9 May 2011
- 13 First International Conference on Desalination and Environment 2011 held in Abu Dhabi from 29/10 to 1/11/2011. Treatment of effluent waste water from phosphoric acid industry (Oral Presentation)
- 14 First International Conference on Desalination and Environment 2011 held in Abu Dhabi from 29/10 to 1/11/2011. Solubility of SO₂ in Dead Sea water (Oral Presentation)
- 15 31st Oil Shale Symposium, held in Colorado, 27-21 October 2011. Sulphur dioxide uptake by Jordanian oil shale ash (poster presentation)
- 16 31st Oil Shale Symposium, held in Colorado, 27-21 October 2011. Removal of SO₂ by Jordanian zeolitic tuff (poster presentation)
- 17 31st Oil Shale Symposium, held in Colorado, 27-21 October 2011. Options for sulphur dioxide removal using oil shale waste and natural materials: An experimental study (oral presentation)
- 18 Microwave treatment of electric arc furnace dust with plastic materials I: Pyrolysis-Leaching with PVC, Waste 2013: 2nd International conference, 11-13 September 2013, Braga, Portugal- Oral presentation

- 19 Toward utilization of waste hexafluorosilicic acid for kaolin purification and alumina production, 27th AFA Int'l Fertilizer Technology Conf. & Exhibition, June 23 – 25, 2014, Agadir , Morocco – Oral Presentation
- 20 Zinc Extraction from Electric Arc Furnace Dust by via Thermal Treatments with PVC ICHM2014: the 6th international conference of Hydrometallurgy, 16-19/10/2014, Beijing, China, Oral Presentation
- 21 Effect of Processing Route and Alloying Substitutions on the Microstructure and Magnetic Properties of Ferrite Magnets, W. Khalifa, M. Aljarrah, O. Elkady, M. Al Harahsheh
- 22 Leachability of Metals from Electric Arc Furnace Dust by Al-Asheh, Sameer; Alharahsheh, Mohamad; Ahmed, Shoaib; Perera, Meloni Stannie; Shadab, Mohammed; International Conference on Sustainable Energy & Environmental Sciences (SEES). Proceedings: 120-129. Singapore: Global Science and Technology Forum. (2016)
- 23 Treatment of industrial wastewater from phosphoric acid industry: Chemical precipitation followed by nanofiltration, 2nd International Conference on Desalination and Environment, 23-26 Jan 2016, Doha, Qatar, Oral Presentation
- 24 Thermodynamic Analysis on the oxidative pyrolytic treatment of Electric Arc Furnace Dust-TBBPA blend, EurAsia Waste Management Symposium 2018, Istanbul, Turkey, 2-4 May 2018, Oral presentation
- 25 MICROWAVE LEACHING OF ALUMINUM FROM KAOLIN BY HCl, AIPEA – XVII INTERNATIONAL CLAY CONFERENCE, 25–29 JULY 2022 – HILTON MASLAK ISTANBUL, TURKEY

Supervision of Master Students:

1. Experimental investigation of a solar desalination with humidification and dehumidification on a rotating surface. 2014 **Finished**
2. Solar Desalination with Solar Still having Phase Change Material and Connected to a Solar Collector. **2014 Finished**
3. Investigation into iron behaviour during the leaching of electric arc furnace dust – PVC pyrolysis residue. **2014 Finished**
4. Study of barium and barium substituted hexaferrites using co-precipitation method: characterization of crystal structure and magnetic properties, 2015, **finished**
5. Comparative study on the adsorption of nanocomposites toward uranium in aqueous solutions 2016, **Finished**
6. Improvement on Solar Powered Desalination System Using Phase Change Materials, 2017 **finished**
7. CO₂ sequestration in Dead Sea water, 2018, **Finished**
8. Sulphur removal from shale oil, 2019, finished
9. CO₂ capture by modified geopolymers, 2020 finished
10. Synthesis of gold nanoparticles, 2020, finished
11. Synthesis of hollow ceramic nano/microspheres for thermal insulations, 2020, finished
12. Leachability of heavy metals from the fly ash of the medical waste incinerator at Jordan University of Science and Technology, 2021, ongoing

Supervision of research graduation projects:

1. A Preliminary study on the leaching of Jordanian copper ores (May 2009), by Abdussalam Abed and Mohammad Faris,
2. Effect of Reaction conditions on the production of sodium hexafluorosilicates (May 2008) by Mohammad Shwaiter, Bassam Makahlah, Ahmad Al-Mahameed and Omara Al-Kasabah, **Winner of the first place of Jordan Engineering Association competition/Chemical Engineering Section**
3. Solubility of Sulfur Dioxide in Dead Sea water (May 2011), By Sondos AL-Odat, Ala'a M. AL-Shroof, Rawan Matrook,
4. Uranium extraction from Jordanian phosphoric acid (May 2011) by Mohannad Mayyas, Ahmad Almatboly, Ahmad Abu-Mahfooz, Supervised by. **Winner of the first place of Jordan Engineering Association competition/Mining Engineering Section**
5. Aluminium Fluoride Production: Phase I Purification of Kaoline (Jan 2013), By Areej Orabi, Amaal Al-Rashdan ,Rawan Bader, and Sondos Anagreh,

6. Zinc Extraction from electric arc furnace dust via thermal treatment with plastic materials (June 2013), by Huda AlJabali, Isra'a AlHammouri, Jumana Al-Nuirat, Mais Al-Zoubi, and Shaima Abu Al-Asal. **Winner of three national awards: first place at the 6th National Technology Parade/Environment, First place of JOSCO award and first place of Jordan Engineering Association competition/Chemical Engineering Section**
7. Natural Jordanian Zeolitic Tuff as Potential Sorbent for Lead Removal from Aqueous Solutions (Jan 2014) by Abeer Jamous, Heba Alqassem, Laila Khalil,
8. Utilization of waste hexafluorosilicic acid for alumina production from Jordanian kaoline, **Winner of two national awards: first place at the 6th National Technology Parade/Environment, First place of JOSCO award**
9. A device for production of biodiesel from waste, **Winner of three national awards: third place at the 10th National Technology Parade/Environment, First place of JOSCO award and second place of Jordan Engineering Association competition/mechanical Engineering Section**
10. Silica-coated magnetic nanoparticles for heavy metal extraction: a case study on uranium, **Winner second place of Jordan Engineering Association competition/Chemical Engineering Section**
11. Use of waste hexafluorosilicic acid as a silica precursor for silica coated magnetic nanoparticles, **Winner of the first award at the 10th National Technology Parade/Engineering Design and Simulation and Winner second place of Jordan Engineering Association competition/Chemical Engineering Section**
12. Oxidative thermal treatment of electric arc furnace dust – Polyvinyl chloride mixture, 2018 **completed, Winner third place of Jordan Engineering Association competition/Chemical Engineering Section**
13. **Extraction of metal values from black mass of spent lithium ion batteries, ongoing**

Teaching

I have taught the following courses for chemical engineering students

Chemical Industries

Instrumental Analysis

Unit Operation

Extractive Metallurgy

Introduction to Mechanics of materials

Engineering ethics

I have taught the following courses for mining and mechanical engineering students

Mineral Processing I

Mineral Processing II

Introduction to Mining Engineering

Statics

Strength of Materials

I can teach courses for chemical engineering such as

Fluid mechanics

Thermodynamics

Reaction Engineering I

Engineering Economics

Research skills

Water and wastewater treatment

Additional Information

1. Reviewer in several international journals such as: Environmental Science and Technology, Industrial & Engineering Chemistry Research, Hydrometallurgy, Journal of Hazardous materials, Chemical Engineering and Processing, Arabian Journal for Science and Technology, Fuel Processing Technology, Fuel, Desalination, etc.
2. Member of ABET committee at the department of chemical engineering
3. Member of organising committees for several conferences

References

<p>Professor Sam Kingman Room A14 Coates, University Park, NG7 2RD, University of Nottingham, UK, Tel.: 0044115 951 4165 Email: sam.kingman@nottingham.ac.uk</p>	<p>Prof. Taha Al-Khamees Ex-President of Al-Hussein Bin Talal University, Mutah University Mobile: 00962795595518 alkhamis@mutah.edu.jo</p>
<p>Prof. Ali Alhrut Ex-President of Al-Hussein Bin Talal University Tel: 00962777402828</p>	<p>Prof. Hani Al-Dmour Ex-President of Al Al-Bayt University Email: Dmourh@ju.edu.jo Tel: 00962795666979</p>
<p>Prof. Fawaz Al-Zboon President of Hashimite University Tel: 00962777438508</p>	

1