Saud A. Khashan, PhD.
Professor
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Scopus: https://www.scopus.com/authid/detail.uri?authorId=6506655882

EDUCATION:

Ph.D. (1998), Mechanical Engineering, University of Pittsburgh, PA, USA.
MS. (1993), Mechanical Engineering, Jordan University of Science and Technology, Jordan
BSC. (1989) Mechanical Engineering, Jordan University of Science and Technology, Jordan

EMPLOYMENT: https://www.just.edu.jo/eportfolio/Pages/Default.aspx?email=sakhashan

Vice Dean, College of Engineering, Jordan University of Science and Technology (Sep. 2022-present): Continues improvement and Quality assurance, Accreditations, Graduate Studies, Faculty Affairs (Promotions, Appointments, professional development, teaching loads and conferences), Dual-study program, National and International Outreach, and agreements.
Professor, Department of Mechanical Engineering, Jordan University of Science and Technology (Feb. 2019-present).
Chair, Department of Mechanical Engineering, Jordan University of Science and Technology (Sep. 2018-Sep.2022) and (Dec. 2023-present)
Vice-director, Academic Development and Quality Assurance ***Center*** ADQAC, Jordan University of Science and Technology. (Sep 2017-Feb, 2018)
Director, Academic Development ***Department***, Jordan University of Science and Technology (Feb 2017-Sep 2017)
Associate Professor, Department of Mechanical Engineering, Jordan University of Science and Technology (Sep. 2016-Feb2019**)**
Associate Professor, Mechanical Engineering Department, United Arab Emirates University (Sep. 2006-Aug 2016**)**
Assistant Professor, Mechanical Engineering Department, United Arab Emirates University (Sep. 2000-Sep.2006**)**
Post-Doctoral Fellow, Petroleum Development Lab, School of Mineral Engineering, University of Alaska Fairbanks. USA. (Jan. 1999 – Sep. 2000)
Lecturer: Mechanical Engineering Department, University of Pittsburgh, PA (Sep. 1998-Jan.1999**)**

RESEARCH & SCHOLAR ACTIVITY:

Research Interests:

Microfluidics and Nanofluidics; Magnetophoresis-based and Dielectrophoresis-based cell separation; multi-target cell sorting; LOC; BioMEMS; Bioassays.

Materials: nanoparticles; Lithography; Magnetic, electrical, and optical materials.

Thermo-fluid: Biomagnetic fluid and particle dynamics; Bioheat and mass transfer; Magnetic Hyperthermia for Cancer Treatment; convective porous media; Contaminant Hydrology; Oil-Reservoir simulation; non-Newtonian flow; Conjugated heat transfer; solar Energy

CFD theory: FVM, FEM, parallel processing, geometrical modeling and grid generation, discretization schemes, numerical visualizations.

Experimental: Microscopy and visualization; Color PIV; Thermal Imaging and Photometric, magnetic, and Radiometric Analysis.
H-index: **21**

Teaching experience:

Jordan U. of Sci. & Tech. (2016-)
Undergraduate: Heat Transfer ME451, Design of Thermal Systems ME530, Heat Transfer II ME452, Thermo-Fluid Lab ME 445, Thermodynamics ME 322, Graduation Project.
Graduate: Computational Fluid Dynamics, Microfluidics

UAEU (2000-2016)
Undergraduate: Fluid mechanics, Heat Transfer, Intermediate Heat Transfer, Engineering Thermodynamics, Applied Thermodynamics, Turbomachinery, Propulsion systems, Mechanical Engineering Analysis, Thermo fluid System Design and Analysis, Foundations of Aerodynamics. Differential Equations and Engineering Applications
Graduate: Thermodynamics of Materials, Advanced Mechanical Analysis, Advanced Mathematics for Engineers, Advanced Heat Transfer, Advanced Computational Methods for Engineers.

U of Pittsburgh (1998)
Graduate: Computational Mass, Momentum, and Heat Transfer ME 2256.

U of Alaska Fairbanks (1999-2000)
Undergraduate: Mechanical Engineering Thermodynamics ME F313, Statics ME F209

Professional Development, Education and Quality Assurance, and Accreditations of Programs.

- Curriculum Development Workshop on Games, Computer Science and Robotics, ELEGANCE project co-funded by Erasmus++, School of Creative Arts and Engineering, Department of Engineering, Staffordshire University, London, UK, 18-28 September 2022
- Vocational Training Diploma on Electrical and Hybrid Vehicle, ECO-CAR Staff Training Workshop, ERASMUS+ PROGRAMME, RWTH-Aachen University, Aachen – Germany, November 7th – 11th, 2022.
- Many Jordanian NQF meetings and workshops, presenting the College of Engineering at JUST.

- Conducting ABET Workshop for College of Engineering, Balqa'a University, Jordan, May 4, 2023
- New Academic Leaders: Strategies for Success, Magna Publications. Course completed Nov 23rd ,2020,
- Leading the ME department for ABET Reaccreditation, 2017-2021.
- Leading the ME department for EUR-ACE accreditation, 2019-2021.
- College of Engineering Council. Sep. 2018-Present.
- College of Engineering Quality Assurance and ABET Accreditation Committee. Sep. 2018-Present.
- JUST University Committee Coordinator, Online Course Quality Assurance development, October 2019-January 2020.
- College of Engineering Committee for Graduate Studies. 2018-2020.
- Certified External Assessor for EUR-ACE Accreditation of Engineering Study Programmes (Training program in the frame of Erasmus+KA2" MEDACCR" project funded by the European Commission. November 2019.
- Served as External Assessor for EUR-ACE accreditation of Engineering Study Programmes, Power Engineering Program at PSUT-Jordan, November 24, 2019.
- "Online documentation of Quality Assurance Engineering Study Programmes to be accredited," Workshop funded by the European Commission at QUACING Agency, 8-10 April 2019, Rome-Italy.
- Leading and/or teaming on many promotion committees at JUST
- Strategic plan committee-ME department, Fall2017
- Strategic Planning Workshop trainer for college deans and their deputies. Jordan University of Science and Technology, July 20, 2017.
- Designed the academic development plans at Jordan University of Science and Technology.
- Labs committee, Fall 2017-present
- Proposed and administered the Fulbright Specialist Project at JUST.
- Prepared JUST New-Faculty Handbook.
- ABET committee at Jordan University of Science and Technology.
- ABET accreditation: chaired the continuous improvement committee and led the overall ABET committee. Experienced two complete cycles of successful ABET evaluations in 2005 and 2010 and provided initial drafts of the Self Study Reports. **L**ed the continuous improvement (Criteria 4) and authored its respective chapter in the new SSR for the 2015 ABET evaluation. UAEU.
- Chaired the curriculum committee and served on the respective college committee
- Chaired and participated in many peer reviews for teaching PET committees for Assistant-to-Associate promotion cases. UAEU.
- Member of the Graduate Committee and responsible for preparing the SSR for international evaluation. ME at UAEU.
- Steering committee in the University initiative for launching a UAE National Center for the Space Program and Technologies, 2013-2016.
- UAEU Aerospace Committee: Founding committee that led to the development and launch of the Aerospace Minor in the ME department at UAEU.
- Chair, Department of Mechanical Engineering, JUST, Sep2018- Sep2022.

Patents (https://patents.justia.com/inventor/saud-a-khashan)**:**

1- Magnetic Particle Separator, Saud A. Khashan, US Patent, US 9968943B2, Grant on May 5, 2018. http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PALL&p=1&u=%2Fnetahtml%2FPTO%2Fsrchnum.htm&r=1&f=G&l=50&s1=9968943.PN.&OS=PN/9968943&RS=PN/9968943

2- Magnetic Particle Separator, Saud A. Khashan, US Patent, US 10189029 B2, Grant on January 29, 2019. http://patft.uspto.gov/netacgi/nph Parser?Sect1=PTO1&Sect2=HITOFF&p=1&u=/netahtml/PTO/srchnum.html&r=1&f=G&l=50&d=PALL&s1=10189029.PN.

Selected peer-refereed Publications:

A. Chapter in a book

1. Microfluidic Platforms for Bio-applications, Anas Alazzam, Bobby Mathew and Saud Khashan, Advanced Mechatronics and MEMS Devices II, pp 253-282, Edited by Dan Zhang and Bin Wei, Springer International Publishing, 2017 DOI 10.1007/978-3-319-32180-6_12

B. Journals

1. Moh' Al-Nimr, Saud Khashan, Hashem Al-Oqla, A novel hybrid pyroelectric-Stirling engine power generation system. Energy, 282(C), 128913, 2023.
2. Aad M. Al-Mahgari, Moh'd A. Al-Nimr, Saud A. Khashan, Pressurized Green Hydrogen From Water Electrolysis: Compression Before or After Electrolysis? A Comparison Among Different Configurations, Journal of Energy Storage, Volume 73, Part D, December 20 2023, 109251.
3. Alazzam, A., Alamoodi, N., Mathew, B. and Khashan, S., Transparent, patterned graphene oxide films with tunable electrical conductivity using thermal, chemical, and photoreduction techniques for lab-on-a-chip applications. *Anal Bioanal Chem* 415(7), 1339–1346 (2023). https://doi.org/10.1007/s00216-023-04524-x
4. Moh'd Al-Nimr, Saud A. Khashan, Hashem Al-Oqla, Novel techniques to enhance the performance of Stirling engines integrated with solar systems, *Renewable Energy*, Volume 202, 2023, Pages 894-906,
5. Alza'areer, A., Aldoss, T., Khashan, S., Numerical Analysis of The Effect of Annular Ejector on The Performance of Self-Evaporating Magneto-Hydro-Dynamic System, *J.sustain. dev. energy water environ. syst.*, 11(2), 1110445, 2023, DOI: https://doi.org/10.13044/j.sdewes.d11.0445
6. Salini Krishna, Fadi Alnaimat, Ali Hilal-Alnaqbi, Saud Khashan and Bobby Mathew, Dielectrophoretic microfluidic device for splitting microparticles based on size with sub-micron resolution, *Micromachines* 11 (7), 653 (2020),
7. S Dagher, A Hilal-Alnaqbi, S Khashan, A Alazzam, Magnetophoretic separation in microfluidic system, Materials Today: Proceedings, In press (available online April 2021 https://doi.org/10.1016/j.matpr.2021.02.799)
8. Al Keyyam, I, Al-Nimr, M, Khashan, S, Keewan, A. A new solar atmospheric water harvesting integrated system using CPV/T – Stirling engine – Absorption cooling cycle and vapor compression refrigeration cycle. *Int J Energy Res*. 2021; 45(11): 16400– 16417. https://doi.org/10.1002/er.6888
9. Mohammed, M.Z., Mourad, AH.I., Khashan, S.A. et al. Studying the impact of depth of focus on 3D profile of negative photoresist material: a simulation approach. SN Appl. Sci. 2, 597 (2020). https://doi.org/10.1007/s42452-020-1950-x.

10. Krishna, S.; Alnaimat, F.; Hilal-Alnaqbi, A.; Khashan, S.; Mathew, B. Dielectrophoretic Microfluidic Device for Separating Microparticles Based on Size with Sub-Micron Resolution. Micromachines 2020, 11, 653. https://doi.org/10.3390/mi11070653
11. S Krishna, F Alnaimat, A Hilal-Alnaqbi, **S Khashan**, B Mathew, Dielectrophoretic 3D-focusing for on-chip flow cytometry, *Micro & Nano Letters* 15 (5), 296-301 (2020)
12. K Al Khasawneh, AA AlWardat, **SA Khashan**, Gaseous slip flow affected by inclined low magnetic field using second-order boundary conditions, *Heat Transfer—Asian Research* 49(2), 909-931 (2019)
13. **Saud Khashan**, Sawsan Dagher, Anas Alazzam, Microfluidic Multi-Target Sorting by Magnetic Repulsion, *Microfluidics and Nanofluidics.* 22(6):64 (2018). DOI: 10.1007/s10404-018-2083-z
14. Sawsan Dagher, Ahmed Soliman, Aiman Ziout, Nacir Tit, Ali Hilal-Alnaqbi, Saud Khashan, Fadi Alnaimat, Jaber Qudeiri, Photocatalytic Removal of Methylene Blue Using Titania- and Silica-coated Magnetic Nanoparticles, *Mater. Res. Express*, 5 065518 (2018)
15. Fadi Alnaimat, Sawsan Dagher, Bobby Mathew, Ali Hilal-Alnqbi, and **Saud Khashan**, Microfluidics Based Magnetophoresis: Review, *The Chemical Record*, 18 (11), 1596-1612 (2018)
16. Waqas Waheed, Anas Alazzam, Eiyad Abu-Nada, **Saud Khashan**, Mohammad Abutayeh, A microfluidics device for 3D switching of microparticles using Dielectrophoresis, *Journal of Electrostatics*, 94, 1–7 (2018).
17. Bobby Mathew, Anas Alazzam, **Saud Khashan**, Ion Stiharu, Sawsan Dagher, Edward P. Furlani, Fabrication of microfluidic device with 3D embedded flow-invasive microelements, *Microelectronic Engineering* 187 (2018), 27-32
18. Mohammed, M.Z., Mourad, AH.I. & **Khashan, S.A**., Maskless Lithography Using Negative Photoresist Material: Impact of UV Laser Intensity on the Cured Line Width, *Lasers in Manufacturing and Materials Processing* 5 (2), 133-142 (2018).
19. **SA Khashan**, A Alazzam, M Hamdan, B Mathew, Mixture Model for Biomagnetic Separation in Microfluidic Systems, *Journal of Magnetism and Magnetic Materials*, 442, pg. 118-127 (2017).
20. **Saud Khashan**, Sawsan Dagher, Nacir Tit, Anas Alazzam, and Ihab Obiadat, Novel Method for Synthesis of Fe_3O_4@TiO_2 Core/Shell Nanoparticles, *Surface and Coating Technology* 322 (2017) 92-98.
21. **Saud A Khashan**, Sawsan Dagher, Anas Alazzam, Bobby Mathew, Ali Hilal-Alnaqbi, Microdevice for continuous flow magnetic separation for bioengineering applications, *Journal of Micromechanics and Microengineering* 27(5) (2017) pg. 055016
22. **Saud Khashan**, Sawsan Dagher, Salahaddin Al Omari, Nacir Tit, Emad Elnajjar, Bobby Mathew and Ali Hilal-Alnaqbi, Photo-thermal characteristics of water-based Fe_3O_4 @SiO_2 nanofluid for solar-thermal applications, *Mater. Res. Express* 4 (2017) 055701
23. Bobby Mathew, Anas Alazzam, **Saud Khashan,** and Mohammad Abutayeh, Lab-on-chip for liquid biopsy (LoC-LB) based on dielectrophoresis, *Talanta 164 (2017) 608–611*
24. Bobby Mathew, Anas Alazzam, **Saud Khashan**, Bashar El-Khasawneh. Path of microparticles in a microfluidic device employing dielectrophoresis for hyperlayer field-flow fractionation. *Microsystem Technologies* (2016) 22:1721–1732.

25. Bobby Mathew, Anas Alazzam, Mohammad Abutayeh, Amjad Gawanmeh, **Saud Khashan**, Modeling the trajectory of Microparticles subjected to dielectrophoresis in a microfluidic device for field flow fractionation. *Chemical Engineering Science*, **138**, 266-280, (2015), doi:10.1016/j.ces.2015.07.014
26. **Saud A. Khashan**, Anas Alazzam, and Edward Furlani, Computational Analysis of Enhanced Magnetic Bioseparation in Microfluidic Systems with Flow-Invasive Magnetic Elements, *Scientific Reports* **4**: 5299 | DOI: 10.1038/srep05299 (2014). (*http://www.nature.com/srep/2014/140616/srep05299/full/srep05299.html*
27. **Saud A. Khashan** and Edward Furlani, Scalability analysis of magnetic bead separation in a microchannel with an array of soft magnetic elements in a uniform magnetic field, *Separation and Purification Technology* **125**, 311-318 (2014).
28. Munjed A. Maraqa and **Saud A. Khashan**, Modeling solute transport affected by heterogeneous sorption kinetics using single-rate non-equilibrium approaches, *Journal of Contaminant Hydrology*, 157, 73–86 (2014)
29. **Saud A. Khashan** and Edward Furlani, Coupled Particle-Fluid Transport and Magnetic Separation in Microfluidic Systems with Passive Magnetic Functionality, J. *Phys. D: Appl. Phys*. **46**, pp.125002 (15pp), 2013.
30. E Elnajjar, Y Haik, MO Hamdan, **S. Khashan**, Heat transfer characteristics of multi-walled carbon nanotubes suspension in a developing channel flow, *Heat and Mass Transfer* **49**, 1681-1687 (2013). DOI 10.1007/s00231-013-1212-1
31. **Saud A. Khashan** and Edward Furlani, Numerical Analysis of Microfluidic Magnetic Bead Separation Utilizing an Integrated Array of Magnetic Elements Magnetized by a Homogenous Bias Field, Technical Proceeding of the 2013 NSTI-Nanotechnology, NSTI-Nanotech 2013; **2**: 289-292, 2013.
32. **S. A. Khashan** and E. P. Furlani, Modeling Particle-Fluid Coupling and its Impact on Magnetic Particle Transport in Microfluidic Systems, Technical Proceeding of the 2012 NSTI-Nanotechnology, NSTI-Nanotech 2012; 2: 408-411, 2012.
33. **Saud A. Khashan** and Edward Furlani, Effects of Particle-Fluid Coupling on Particle Transport and Capture in a Magnetophoretic Microsystem, *Microfluidics and Nanofluidics* 12, pp. 565-580, 2012.
34. **Saud A. Khashan**, Yousef Haik and Emad Elnajjar, CFD simulation for Biomagnetic Separation involving Dilute Suspensions, *Canadian Journal of Chemical Engineering*. 90(6), pp. 1450-1456, 2012.
35. **Saud A. Khashan**, Emad Elnajjar and Yousef Haik. Numerical Simulation of the Continues Biomagnetic Separation in a Two-dimensional Channel, *International Journal of Multiphase Flow* 37, pp. 947–955, 2011
36. **Saud A. Khashan**, Emad Elnajjar and Yousef Haik, CFD Simulation of the Magnetophoretic Separation in a Microchannel, *Journal of Magnetism and Magnetic Materials* 323, pp. 2960–2967, 2011.
37. **Saud. A. Khashan** and Y. Haik, Numerical Simulation of Bio-magnetic Fluid Downstream an Eccentric Stenotic Orifice, *Physics of Fluids*. Vol. 18 (11), pp.113601, November 2006.
38. **S. A. Khashan**, A.M. Al-Amiri, and Ioan Pop, Numerical Simulation of Natural Convection Heat Transfer in a Porous Cavity Heated from Below Using a Non-Darcian, Thermal Non-Equilibrium Model, *Int. J. of Heat & Mass Transfer*. Vol. 49 (5-6), pp. 1039-1049, 2006.

39. **S. A. Khashan** and M.A. Al-Nimr, Validation of the Local thermal equilibrium assumption in forced convection of non-Newtonian fluid through a porous channel, *Transport in Porous Media*. Vol. 61(3), pp. 291-305, 2005.
40. **S. A. Khashan**, An improved Interpolation Scheme for Finite-Volume, Pressure-Correction Methods in Complicated Geometries, *International Journal of Pure and Applied Mathematical Science*, Vol. 2(1), pp. 102-117, 2005.
41. **S. A. Khashan**, A.M. Al-Amiri, and M.A. Al-Nimr, Assessment of the local thermal non-equilibrium condition in developing forced convection flows through fluid-saturated porous tubes*. Applied Thermal Engineering*, Vol. 25(10), pp. 1429-1445, 2005.
42. **S. A. Khashan** and A.M. Alteraifi, Steady-states versus time accurate simulations for sub-critical flows around circular cylinder, *Computational Fluid Dynamics Journal.* Vol.13, pp.70-78, 2004.
43. **S. A. Khashan**, Ogbe, D.O., and Jiang, T.M, Development and optimization of Parallel Code for Large-scale Petroleum Reservoir Simulation, *Journal of Canadian Petroleum Technology*, Vol. 41, No. 4. pp. 33, 2002.
44. K. Al-Jamal, **S. Khashan**, Effect of Energy Extraction on Solar Pond Performance, *Energy Conversion and Management Journal.* Vol.39, No.7, pp.559-566, 1998.
45. K. Al-Jamal, **S. Khashan**, Parametric Study of Solar Pond in Northern Jordan, *Energy.* Vol.21, pp. 939-946, 1996.

B. Conference Proceedings

1. Ameer Mubaslat, Ahmad AlHaj, Saud A Khashan, Simulation assisted leak detection in pressurized systems using machine learning, Proceedings of the 1st International Congress on Engineering Technologies: EngiTek 2020, CRC, pg 124. 16-18 June 2020, Irbid, Jordan
2. S. Ramesh, F. Alnaimat, A. Hilal-Alnaqbi, S. Khashan, A. Alazzam, and B. Mathew, "Mathematical Model of Microfluidic Devices Employing Dielectrophoresis for 3D-Focusing," 2019 IEEE 14th International Conference on Nano/Micro Engineered and Molecular Systems (NEMS), Bangkok, Thailand, 2019, pp. 187-191, doi: 10.1109/NEMS.2019.8915593.
3. M. O. Hamdan, H. M. Alargha, S. Khashan, and W. H. Aziz, "CFD Investigation of the Effect of Cerebral Aneurysms Size on Wall Stresses and Strain," 2019 Advances in Science and Engineering Technology International Conferences (ASET), Dubai, United Arab Emirates, 2019, pp. 1-7, doi: 10.1109/ICASET.2019.8714289.
4. Sawsan Dagher, Ali Hilal-Alnaqbi, Nacir Tit, Saud Khashan, Fadi Al Naimat, Bobby Mathew, Thermal Efficiency of a Direct Absorption Solar Collector Using Magnetic Nanofluids, 2018 5th International Conference on Renewable Energy: Generation and Applications (ICREGA), IEEE conference.
5. Mohammed Ziauddin and Abdel-Hamid I. Mourad, Saud A. Khashan, Cost Effective Maskless Lithography, Paper#1570423175, Proceedings of the First International Multi-Conference on Advances in Science, and Engineering Technology | ASET'18, Al-Ain-UAE, February 6-7, 2018.
6. **SA Khashan**, A Alazzam, B Mathew, S Dagher, M Hamdan, CFD Simulation of magnetic separation in microfluidic systems using mixture model, Eleventh International Conference on CFD in the Minerals and Process Industries CSIRO, Melbourne, Australia 7-9 December 2015
7. Saud Khashan; Anas Alazzam and Bobby Mathew, Modeling and simulation of the multiphase flow involving magnetophoresis-based microfluidic systems, Proc. SPIE 9517,

Smart Sensors, Actuators, and MEMS VII; and Cyber-Physical Systems, 951728 (May 21, 2015); doi:10.1117/12.2178657; http://dx.doi.org/10.1117/12.2178657

8. Bobby Mathew, Anas Alazzam, Saud A. Khashan Microfabrication of multi-Layered electrodes for dielectrophoresis based field flow fractionation, Proceedings of SPIE Vol. 9518, paper 23, 2015.
9. Bobby Mathew, Anas Alazzam, Saud A. Khashan, Bashar S. El-Khasawneh, Trajectory of microscale entities in a microdevice for field-flow fractionation based on dielectrophoresis, Proceedings of SPIE Vol. 9518, paper 31, 2015.
10. Bobby Mathew, Anas Alazzam, Bashar El-Khasawneh, Saud Khashan, Ghulam Destgeer, Hyung J Sung, "Tracking Microparticles Subjected to Dielectrophoresis in a Continous Flow Microdevice," ASME 2015 International Mechanical Engineering Congress and Exposition, IMECE2015, Houston, Texas, USA, November 13-19, 2015
11. Mathew, Bobby; Alazzam, Anas; Khashan, Saud; Destgeer, Ghulam; Sung, Hyung J, "Trajectory of microparticles actuated with standing surface acoustic waves in microfluidic devices," in Micro and Nanoelectronics (RSM), 2015 IEEE Regional Symposium on, vol., no., pp.1-4, 19-21 Aug. 2015, doi: 10.1109/RSM.2015.7354996
12. Saud A. Khashan, Anas Alazzam and Bobby Mathew, Magnetophoresis-based Microfluidic system for Multi-Target separation, World Congress and Expo on Nanotechnology and Materials Science, Dubai-UAE, Page 139, April 13-15, 2015.
13. Anas Alazzam, Ion Stiharu, and Saud Khashan, Continuous separation of cancer cells from blood in a microfluidic channel using Dielectrophoresis, ASME Proceedings, Vol. 10, Micro- and Nano-Systems Engineering and Packaging, Paper No. IMECE2014-37438, 2014. Presented at the International Mechanical Engineering Congress and Exposition IMECE2014 November 14-20, 2014, Montreal, Quebec, CANADA doi: 10.1115/IMECE2014-37438.
14. Anas Alazzam, Ion Stiharu, Vahé Nerguizian, Saud Khashan, and Ahmad Bani Younes, Deregulated genes by separation of living cells using dielectrophoretic, 20th International Symposium on Separation Science, ISSS 2014, and August 30- September 2, 2014. Prague, Czech Republic.
15. Mohammed O. Hamdan and **Saud Khashan**, Numerical Investigation of Solar Chimney Power Plant in UAE. The 3rd "International Conference on Renewable Energy: Generation and Applications" ICREGA'14, March 2014, Al-Ain, UAE.
16. **Saud A. Khashan**, Anas AlAzzam and Edward Furlani, A Novel Design for a Microfluidic Magnetophoresis System: Computational Study, Proceedings of the 12th International Conference on Fluid Control, Measurements and Visualization FLUCOME2013, Nara, Japan, November 18-23, 2013.
17. Anas Alazzam, Bobby Mathew, Saud Khashan and Bashar El-Khasawneh, Tracking Microparticles Subjected to Dielectrophoresis in a Continuous Flow Microdevice, Bio-Engineering Conference BIO ENG '14, Istanbul, Turkey, 27-29 Nov 2014.
18. **Saud A. Khashan** and Yousef Haik, Numerical Simulation of Biomagnetic Fluid Separation In a 2D Planner Channel, Proceedings of the 11th International Conference on Fluid Control, Measurements and Visualization FLUCOME 2011, Keelung, Taiwan, December 5-9, 2011.
19. **Saud A. Khashan** and Edward Furlani, CFD-Based, Lagrangian-Eulerian coupling approach for Magnetophoretic Particle Capture, P-42, Proceedings of the 3rd Micro and Nano Flows Conference Thessaloniki, Greece, 22-24 August 2011.
20. **Saud A. Khashan** and Edward Furlani, Discrete Particle Modeling for Magnetophoretic Particle Capture, 3rd International Conference of Nanotechnology, UAE-Al-Ain, 27-30 November 2011.
21. Emad Elnajjar, Yousef Haik, Mohammed Hamdan and **Saud A. Khashan,** Experimental Study of Convective Heat Transfer of MWCNT in Aqueous Fluid Flow inside Micro-circular

Tube**,** 3rd International Conference of Nanotechnology, ICN2011, UAE-AlAin, 27-30 November 2011.

22. **Saud A. Khashan**, Yousef Haik and Emad Elnajjar, Magnetophoresis, and Diffusion Interactions involving the Transport of Magnetic Microparticles, 7th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics HEFAT2010, Antalya, Turkey, July 2010.
23. M.A. Haggag, S.K. Elmasry, and **S.A. Khashan**, Integrating Intelligent Glass Facades for Low-Energy Building Performance: Design Criteria for Abu Dhabi, International Conference on Renewable Energy: Generation and Applications, ICREGA'10, Paper 232, Al-Ain, UAE, March 2010.
24. Mohammad M., **Khashan S**., Elnajjar E.," Numerical Investigation of Dimpled Surfaces to Enhance Energy Recovery and Heat Transfer" The 10th Annual UAE University Research Conference, April 2009.
25. Elnajjar E., **Khashan S**., Mohammad M., Acoustic Excitation of instability waves in free Shear Layer of an Axi-Symmetric Cylinder, The Tenth Annual UAE University Research Conference, April, pp. 841-849, 2009.
26. **S. A. Khashan** and Y. Haik, Numerical Simulation of Bio-magnetic Fluid Using a Simplified Equilibrium-Based Model. Paper 72:00, Proceedings of the 13th International Heat Transfer, Sydney Australia, 13-18 August 2006.
27. Y Haik, H Hejase, **S Khashan**, V Mohite, Magnetic Nanoparticles for Self-Controlled Hyperthermia, The Seventh Annual UAE University Research Conference, April 2006.
28. **S. A Khashan**, Effect of local thermal non-equilibrium in forced convection of non-Newtonian fluids through porous media. Paper HT-FED2004-56649, pp. 1145-1151, Proc. 2004 ASME Heat Transfer/Fluid Engineering Summer Conference, Charlotte, North Carolina, 2004.
29. **S. Khashan** and A. Alteraifi. Code Development and Validation of RANS solvers for Flows around Bluff Bodies. ASME Fluids Engineering, FED. Vol. 258, pp. 765-772. 2002. Paper IMECE2002-34157 presented at the ASME International Mechanical Engineering Congress & Exposition. New Orleans, Louisiana, November 17-22, 2002,
30. D. Ogbe, **S. Khashan**, Don Morton and Jun Liu, Performance Issues in Large-Scale Reservoir Simulation Using Parallel Processors, SPE 76745, SPE Western Regional/AAPG Pacific Section Joint Meeting, Anchorage, Alaska, May 2002.
31. **S. Khashan**, D. Ogbe and T.Jiang: Development of Parallel code for large-scale Petroleum Reservoir Simulation, Paper CIM-2000-41, Proc. Petroleum Society's International Petroleum Conference, Calgary, Alberta, June 4-8, 2000.
32. D. Ogbe, T. Jiang, **S. Khashan**, A. Lawel, Data and Computations Distribution for Large Scale Reservoir Simulation on massively Parallel Processors, Final report, National Science Foundation NSF, Advanced Computational Research Program, Project No. ASC-9720237, Nov. 2001.

Research Grants:

1. Automated Microfluidic platform for multi-target and concurrent diagnostics, PI, Scientific Research and Innovation Fund (Jordan), JD 96,700, 1/2021-6/2023.
2. Microfluidic Platform for Cell Analysis. **PI**, UAEU Start-up research fund, Fund no. 31N158, **495,000 AED,** granted Jan 2014
3. On-chip microfluidic system for multi-target cell separation and sorting. **PI**, NRF, Fund no. 31N130, 360,000 AED, granted in March 2013.
4. Hybrid Lab on a Chip for Liquid Biopsy (LOC–LB), AL JALILA Foundation, (**co**-Pi) Fund AJF201406, **235,000 AED**, Two-Years, granted November 2014.
5. A novel microdevice for separation of rare cells from blood using traveling surface acoustic waves (TSAW) and dielectrophoresis (DEP)", Khalifa University Internal Research Fund (KUIRF) level 2, External Investigator (**co-PI**); **3,000,000 AED** over two years, Sep 2013- Dec 2015

6. Eulerian-Lagrangian model-based Predictions of Particulate Two-Phase Flows in Biomagnetic Separation Applications, **PI**, Individual Research Funded by the Research Affairs Department, UAEU, project no1655-07-07-01-11, AED 20,000, awarded on Feb 2011
7. Numerical and Experimental Investigation for Magneto-convection heat transfer in channels and enclosures, **PI**, Individual Research Funded by the Research Affairs Department, UAEU, project no. 1655-07-07-01-10, AED 20,000, granted in March 2010 and completed in 2011.
8. Integrating Advanced Facades into High-Performance Buildings: Intelligent Design Criteria for the UAE, **co-PI**, Individual Research Funded by the Research Affairs Department, UAEU, project no. 06-06-7-11/08**,** AED 20,000, awarded on Feb 2009.
9. Experimental and Numerical Simulation of Biomagnetic Fluid Dynamics, **PI**, Individual Research Funded by the Research Affairs Department, UAEU, project no. 06-06-7-11/06**,** AED 20,000, granted 2007 completed Feb 2008
10. Color Particle Image Velocimetry, **PI**, Individual Research Funded by the Research Affairs Department, UAEU, project no. 06-06-7-11/05**,** AED 20,000, granted 2006 and completed Feb 2007
11. Numerical Analysis of Conjugated Heat transfer slip flows in microchannels. **PI**, Individual Research Funded by the Research Affairs Department, UAEU, project no. 06-05-7-11/05**,** AED 16,500, completed April 2006.
12. Magnetic Hypothermia for Cancer Treatment, **co-PI**, Interdisciplinary Research Project no. 01-05-7-12/04, UAE, AED 256,000. Awarded on Dec 2004.
13. Optimization of Built-Form Configuration in Tall Buildings Using CFD Simulation to Improve Airflow and Promote Passive Cooling in Urban Environments in the UAE. Interdisciplinary Research Project no. 01-02-1-12/05, UAE, AED 200,000.
14. Examination of the Local Thermal Equilibrium Assumption in Convective Heat Transfer in Non-Newtonian Fluids-Saturated Porous Medium, **PI**, Individual Research Funded by the Research Affairs Department, UAEU, project no. 06-05-7-11/04**,** AED 4,200, completed on April 2004.
15. A Conservative Interpolation Scheme for Finite-Volume, Pressure-Correction-Based Methods in Collocated Grid. **PI**, Individual Research Funded by the Research Affairs Department, UAEU, project no. 05-05-7-11/03, AED 9500, completed on April 2003.
16. Investigation of the flow & thermal behavior inside a pot-line building ventilation system. **Co-PI**, consultation, and research project externally funded through Efors by DUBAL, Dubai, UAE, AED 98,377. Awarded in Oct 2003
17. Code Development and Validation of RANS solvers for Flows Around Bluff Bodies, externally funded project by Dassault Aviation- France, Project No. 99/52-7-03, AED 199,000. Completed on October 2002.
18. Data and Computations Distribution for Large Scale Reservoir Simulation on Massively Parallel Processors, **co.PI**, funded by National Science Foundation NSF, Advanced Computational Research Program, Project No. ASC-9720237, US$124,000, completed on Nov 2001.
19. Super-Computation accounts: T3E Cray account granted from the DoD supercomputer center at the University of Alaska Fairbanks, and SP2 IBM account granted from the San Diego supercomputer center. Jan 1999- Sep 2000.
20. T3D Cray account: granted by the Pittsburgh Supercomputer Center. Jan 1997 – Feb 1999.
21. I received a full scholarship and a Teaching Fellowship from the University of Pittsburgh during my graduate studies.

Other Research-Related Activities

- Conference Chair, 2nd International Conference on Mechanical Engineering and Technologies (MechaniTek 2022), 14-16 June 2022 in Irbid, Jordan.
- Conference Chair, 1st International Conference on Mechanical Engineering and Technologies (MechaniTek 2020). 16-18 June 2020 (Remotely) in Irbid, Jordan
- **Organizing committee for the 13th International Conference on Fluid Control, Measurements, and Visualization,** Doha, Qatar, 15-18 November 2015 (http://www.qu.edu.qa/FLUCOME2015/committees.php)
- UAEU College of Engineering Research Committee.
- **Organizing committee for the World Congress and Expo Nanotechnology and Material Science, Dubai, UAE, April 13-15, 2015 (http://scientificfuturegroup.com/nanotechnology-2015/organizing-committee.php)**

- **Organizing committee for the 2nd International Conference on Renewable Energy: Generation and Applications, ICREGA'10, Al-Ain, UAE, March 2011.**
- **Organizing committee International Conference on Renewable Energy: Generation and Applications, ICREGA'10, Al-Ain, UAE, March 2010.**
- Editorial board member, Open Mechanical Engineering Journal (OME), BENTHAM Science Publishers**.**
- Executive editorial board for Emirates Journal for Engineering Research EJER, 2005-2006.
- **Organizing committee for the International Conference on the Applications of Micro-Nano technology in Biotechnology: Future Prospects in the Emirates, UAE, Nov. 2006.**
- Scientific committee for the International Conference on Engineering Theory and Applications, Al-Ain, UAE, Jan. 2006.
- College scientific research committee.
- Reviewer for many International Journals of Microfluidics and Nanofluidics, Physics of Fluids, Journal of Engineering Mechanics (ASCE), Engineering Science, Canadian Journal of Chemical Engineering, International Journal of Energy Research, International Journal of Exergy, Journal of Porous Media, Journal of Magnetism and Magnetic Materials, Kuwait Journal of Science and Engineering, International Journal of Applied Engineering Research (IJAER) and for many international conferences

Thesis (supervision)

1- Numerical Fluid-Solid Interaction (FSI) Analysis for Cerebral Aneurysms, Haneen Qirba', ME. Dep. JUST, 2018, ongoing.
2- MSc Thesis: A Cost-Effective Direct Writing Laser System for Rapid Prototyping of Microfluidic Devices, ME. Eng., UAEU 2018.
3- The Effect of Annular Ejector on The Performance of Self-Evaporating Magneto-Hydro-Dynamic System, MSc, Anwar Zaareer. 2020.
4- CFD study of the hydrothermal performance of rotating fins in pin fin heat sink with wings, MS, Hani Hinnawi, 2020.
5- Techniques to enhance the performance of Stirling Engine systems. MS, Hashem Oqla.
6- A New Solar Atmospheric water Harvesting Integrated System Using CPV/t -Stirling engine - absorption cooling cycle and Vapor Compression Refrigeration cycle, MS, Ibrahim Qayyam,2020
7- MSc Thesis: Integrating Advanced Facades into Sustainable Office Buildings in the Emirate of Abu Dhabi, UAE, Ahmad Omar Balhama, Env. Science UAEU, 2009.
https://scholarworks.uaeu.ac.ae/cgi/viewcontent.cgi?article=1608&context=all_theses
8- Currently supervising 4 MS students,

CFD software:

Expert in ANSYS: FLUENT, CFX, Transient Structure, COMSOL, SpaceClaim, DesignModeler, Airpack, Icepack, PolyFlow, FlowWizard; COMSOL Fidap, Gambit, CAD and GridGen**.**

Programming:

Expert in Fortran, Visual Basics, C, C++, Unix scripts, and Parallel processing using PVM, MPI, and utilizing a cluster of workstations, T3E, and SP2 supercomputers.

Honors, awards:

- **The University of Philadelphia Prize for Best Invention, 2021.**
- **UAEU Award for Distinguished Merits; Excellence in Teaching, Research and Service, June 2006.**
- **UAEU merited salary raise, Jan 2007**
- **The best-funded research project, 2007**
- Post-Doctoral Fellowship, NSF funded at School of Mineral Engineering, University of Alaska Fairbanks.
- Merit promotion from Teaching Assistant to Teaching Fellow in my last year of Ph.D., University of Pittsburgh
- Full MS and Ph.D. Scholarships.