

Dr. Saad S. Alrwashdeh

(Associate Professor with One - Year Seniority)

H-Index: 20

I.10-Index: 40



Mechanical Engineering., Ph.D.
Professional Engineer., PE.

Dr. Saad Alrwashdeh is the Head of the Materials Science and Energy Laboratory (MSEL) at Mutah University. He is a member of the Jordanian Engineers Association (JEA) since 2011 with the rank of a professional engineer (P.E.). He also has 5 years of practical experience in the field of power plants in Jordan. He received a full scholarship to complete his bachelor's and master's degrees from Mutah University in Jordan, after that, he got a full scholarship from Mutah University to join the Technical University of Berlin to pursue his Ph.D. Since then, he has started his new career as a faculty member in the Mechanical Engineering Department at Mutah University.

Personal:

- Marital Status: Married.
- Date of Birth: 24/3/1988.
- Nationality: Jordanian.
- Place of Birth: Al-Karak-Jordan.
- Languages: Arabic (mother language).
 - English (Excellent; speaking, writing and reading).
 - International English Language Testing System (IELTS).

Phone: +962 3 2372 380 Ext. 4744

Mobile: +962 79 6 430481

E-Mail: saad.alrwashdeh@mutah.edu.jo
Saad_r1988@yahoo.com

Website: www.mutah.edu.jo

Objectives:

- To improve experience in projects' environment.
- Working within a dynamic team and recognized project.
- Increasing management, technical, and communication skills.
- Exploitation theoretical knowledge in the practical work fields.

Education

- 2015 - 2017 **Technische Universität Berlin “TU.BERLIN”.**
Berlin, Germany
Ph.D. Mechanical Engineering.
“Has completed the Ph.D. degree in two years and a half”
Thesis title: “Radiographic and Tomographic Investigation of Water Transport in Operating Polymer Electrolyte Membrane Fuel Cells”.
- 2013 - 2014 **Mutah University**
Al-Karak, Jordan
M.Sc. in Mechanical Engineering.
“Has completed the M.Sc. degree in one year”
Rank:1st of my class (Excellent degree,” Honored”)
- 2006 - 2010 **Mutah University**
Karak, Jordan
B.Sc. in Mechanical Engineering.
“Has completed the B.Sc. degree in four years”
Rank:1st of my class
- 2005 - 2006 **Mutah High School**
Al-Karak, Jordan
Scientific Stream.

Research visits

- ❖ **Technische Universität Berlin (TU Berlin), Berlin – Germany. (2022)**
“Neutron radiography imaging”
- ❖ **Ústav přístrojové techniky - Czech Republic. (2021).**
“High Res. Imaging”
- ❖ **The Berliner Elektronenspeicherring-Gesellschaft für Synchrotronstrahlung m. b. H., BESSY II. Berlin-Germany (2019).**
“High Res. Synchrotron Imaging”
- ❖ **Helmholtz-Zentrum Berlin (HZB), Institute Applied Materials (EM-IAM), Berlin-Germany, (2018).**
“Synchrotron Imaging of Polymer Electrolyte Membrane Fuel Cells, (PEMFCs)”
- ❖ **Zentrum für Sonnenenergie- und Wasserstoff–Forschung Baden Württemberg (ZSW), Ulm – Germany, 2016.**
“Polymer Electrolyte Membrane Fuel Cells, (PEMFCs)”
- ❖ **IIIIEE, Lund University, Lund–Sweden, 2013.**
“Renewable Energy and Sustainable Development”.
- ❖ **International University Malaysia (IIUM), KL–Malaysia, 2012.**
“Composite Materials, CM”.

Awards

- Ranking the first in the class of 2010, B.Sc., Mutah University, Al-karak-Jordan.
- Ranking the first in the class of 2014, M.Sc., Excellent degree, Mutah University, Al-karak-Jordan.
- Prof. Dr. Eng Ali H. Nayfeh Award (2014), Amman-Jordan.
- The Tempus European Joint Project, MANSUR (2014), Lund-Sweden.
- Mutah University academic staff members with high H-index research, 2018, 2019, 2020, 2021 and 2022.
- Mutah University academic staff members with high number of scientific publications, 2018, 2019, 2020, 2021 and 2022.
- Mutah University Distinguished Researcher Award, 2019.
- Exceptional one-year seniority in rank due to scientific achievement, 2020.

Sponsorships

- ✓ Full scholarship from His Majesty King Abdullah Bin Husain II, B.Sc., Mutah University, Al-Karak- Jordan.
- ✓ Full scholarship from The Ministry of Higher Education and Scientific Research, M.Sc., Mutah University, Al-Karak- Jordan.
- ✓ Full scholarship from Mutah University, Ph.D., TU. BERLIN, Berlin – Germany.

Grants

- Mutah University Grant No. 556/2022. Research Exchange with TU-Berlin University, Berlin-Germany.
- Mutah University Grant No. 553/2022. "Theoretical and experimental study on phase-change materials suitable for energy storage and thermal insulation in Jordan", Fund of **22000 USD**. Jordan.
- Mutah University Grant No. 571/2022. "Digital transforming and automation of administrative procedures in the college of graduate studies and the deanship of scientific research / Mutah University", Fund of **76000 USD**. Jordan.
- Mutah University Grant No. 450/2021. "Making and characterizing new anode catalysts with higher performance for proton exchange membrane fuel cell", Fund of **95000 USD**. Jordan.
- Mutah University Grant No. 428/2021. "Recycling of materials industrial waste into a new composite alloy using sintering technique", Fund of **250000 USD**. Jordan.
- Mutah University Grant No. 444/2021. "Energy and Exergy Analysis for a Combined Cycle Power Plant (CCPP) in Jordan", Fund of **2000 USD**. Jordan.
- Mutah University Grant No. 380/2021. "Mutah University in the QS classification globally, regionally and locally", Fund of **55000 USD**. Jordan.
- Mutah University Grant No. 648/2020. Research Exchange with Koc University, Istanbul-Turkey.
- Optigaa 2 (grant number 03ET6015A) by the Federal Ministry for Economic Affairs and Energy (BMWi.IIC6) in Germany.

Memberships

National

- JEA, Jordan Engineers Association
Amman – Jordan
Division: Mechanical Engineering / Jordan
“Professional Engineer, PE.”
- JPS, Jordanian Physics Society
Amman – Jordan

International

- AEE, Association of Energy Engineers
Georgia State –USA
- VDI, German Engineers Association
Dusseldorf – Germany
- DGM, German Society for Materials Science
Frankfurt – Germany
- REA, Renewable Energy Agency
Berlin – Germany

Committees

Conferences and Workshops Committees:

- Organizing committee member of the 2nd International Conference on Industrial, Systems and Manufacturing Engineering ISME'19. ISME'19 aims to address and connect current issues in research and applications in the various fields of industrial, systems and manufacturing engineering
- Organizing committee member of the Research Partnerships: Successes and future directions symposium aims to address and connect current issues in research and applications in the various fields of science and engineering, Mutah University Royal scientific society RSS, 2021.

Committees Membership:

- | | |
|--------------------------|---|
| <i>Department Level:</i> | ✓ Chairman of the Graduate Studies, Quality Assurance, E-learning development, and the Qualifying Exam Committees. |
| | ✓ Member of the Laboratories Update, and the Dep. Self-Assessment Committees. |
| <i>Faculty Level:</i> | ✓ Member of the Strategic Plan, the Renewable Energy, the Scientific Research, the Faculty Self-Assessment, the Quality Assurance, the Social and Cultural, the Safety, and the E-learning development Committees. |
| <i>University Level:</i> | ✓ Member of the Renewable Energy, the Innovation and Communication with Industry, the Quality Assurance, the International Classifications (QS), and DAAD Committee for MA-level student selection for scholarship nomination Committees. |
| <i>National Level:</i> | ✓ Member of the Special Accreditation Committee for Intermediate Diploma degree majors at Tafila Technical University |

Editorial Activities

- **Editor: OA Journal – Membranes**
<http://oa.enpress-publisher.com/index.php/MO/about/editorialTeam>
- **Editor: Journal of Management Science & Engineering Research**
<http://ojs.bilpublishing.com/index.php/jmser/about/editorialTeam>
- **Editor: Energy and Sustainable Development (ESD)**
<http://ojs.bbwpublisher.com/index.php/esd/about/editorialTeam>
- **Editor: International Journal of Energy and Energy Control (IJECC)**
<https://topsci.online/2019/08/17/dr-saad-s-alrwashdeh/>
- **Editor: Scienxt Journal of Mechanical and Machine Engineering**
<http://scienxt.com/editorial-board-mechanical-and-machine-engineering/>
- **Editor: Scienxt Journal of Mechanical Design and Automation**
<https://scienxt.com/sjmnda-editorial-board/>

Administration Experiences

2022 - 2023	Engineering faculty Representative at University Council, Mutah University, Al-karak-Jordan.
2020 - 2022	Assistant Dean, Deanship of Academic Research, Mutah University, Al-karak-Jordan.
2021 - 2022	Mechanical Engineering Department Representative at Faculty Council, Faculty of Engineering, Mutah University, Al-karak-Jordan.
2019 - 2020	Mechanical Engineering Department Head, Faculty of Engineering, Mutah University, Al-karak-Jordan.
2018 - 2020	Assistant Dean for Student Affairs and Quality Assurance, Faculty of Engineering, Mutah University, Al-karak-Jordan.
2018 - 2019	Industrial Systems Engineering Department Representative at Faculty Council, Faculty of Engineering, Mutah University, Al-karak-Jordan.

Academic Experiences

2022 - Present	Associate Professor of Energy, Dep. of Mechanical Engineering, Mutah University, Al karak-Jordan.
2017- 2021	Assistant Professor of Energy, Dep. of Mechanical Engineering, Mutah University, Al karak-Jordan.
2015 - 2017	Ph.D. student and Research Assistance, Technische Universität Berlin (TU.Berlin) and Helmholtz Zentrum Berlin (HZB), Berlin-Germany.

Teaching Experience

2017- present

Undergraduate Level	Fluid mechanics, Heat transfer, Thermodynamic, Energy Conversion, Energy Efficiency, Internal combustion Engines, Solar Energy, Wind Energy, HVAC, Fuel Cells; PEMFCs, Numerical Analysis, Power Plants, Energy Management, Automotive Engineering, Principles of auto mechanics and maintenance and Renewable Energy Systems.
---------------------	--

Industrial Experiences

2010 - 2015 **Operation and Control Engineer, Korean Southern Power Co. (KOSPO)**

- Responsible for managing and controlling all activities during shift.
- Reporting shift efficiency for operation head.
- Troubleshooting and solving various problems and trips of machines that may occur during shift.
- Switching on LV and MV switchgears.
- Supervision on startup and shutdown of the following systems:
 - Gas Turbines, Steam Turbine, BSDG, EDG, FO& FG Systems and HV&LV
 - Systems and WT System
- Perform all operational tests such as interlock tests, electrical, mechanical over speed tests, safety valve test.
- Issue work permits for maintenance engineers after specifying & execution all required isolations for the related equipment's

2009 - 2010 **B.Sc. Training, Korean Southern Power Co. (KOSPO), The training includes:**

- Maintenance plans.
- Substation maintenance.
- Protection and metering.
- Operation and control.
- O & M Reports.

Industrial workshops

- Facility Safety, (LOTTE Engineering and Construction Company)
- Basic Principle of Combined Cycle {CCPP} (Korea Power Learning Institute. KPLI)
- Gas Turbine (GT) Operation and Maintenance systems (Siemens AG, Germany)
- Steam Turbine (ST) Operation and Maintenance Systems (SKODA, Czech Republic)
- CC Balance of plant Systems (SNC. LAVALIN Thermal Power, Canada)
- Fire protection and Detection systems (Simplex Grinnell, MA - USA)
- Air Cool Condenser Systems, ACC (SPX, NC - USA)
- Steam Turbines Vibration and Monitoring Systems (PROFESS, Czech Republic)

Fields of Interest

Energy, Nuclear Energy, Imaging techniques, Renewable Energy, Thermal Systems, Mechanical Power System Analysis, Mechanical Machine, Protection Systems, Transmission and Distribution System, Power and Control Systems and Electrical Installation.

Computer Skills

Microsoft office	Word, Excel, Access, Publisher and PowerPoint. (MUCDL)
Engineering software	AUTOCAD, 3D MAX, MATLAB, Image.J, MAVI, Octopus reconstruction, Monte Carlo Simulation, VG studio MAX, Fiji, Photoshop, SPSS, Engineering Equation Solver (EES), Sigmaplot, Solidworks, Tecplot, TRNSYS, WindPRO, SIEMENS (SPPA-T3000) Energy-2D, Energy-3D, RET Screen Expert and OriginPro.
Language Program:	C++, Turbo C++, Basic, VB and Interactive Data Language (IDL)

Thesis and Journal Review Activities

- ✓ “Currently a reviewer for many international journals of renewable energy systems”
Energy Journal, Applied Energy Journal, Energy conversion and management Journal, ACS Nano Journal, Applied Material and Interfaces Journal, International Journal of Renewable Energy Research IJREER, Electrochimica Acta Journal, Power Sources Journal, Energy and Building Journal, etc....
- ✓ Served as an examiner (committee member) for many graduate and master thesis students.

Supervising

Supervising Graduate Students, (Master – Level):

- 2022** The Effect of the Nano Coating on the Heat Transfer Performance of Copper Heat Exchanger
- 2021** Energy and Exergy Analysis for a Combined Cycle Power Plant (CCPP) in Jordan.

Supervising Undergraduate Students:

- 2021**
- Evaluation of a Nearly net-zero energy Building Strategies: A Case Study on Residential Buildings in Amman – Jordan
 - Design of an on-grid PV system for a residential building in Amman-Jordan
 - Design of an on-grid PV system for a commercial building in Amman-Jordan
- 2020**
- The effect of inter-row spacing on PV energy production
- 2019**
- Design and build a safety system for gas leakage from gas-using applications
 - Developing a system for analyzing internal stresses of mechanical systems
- 2018**
- Refurbishment of Faculty of Engineering Building at Mutah University toward a Surplus Energy Building
 - The Effect of the Solar Tower Height on its Energy Production at Selected Governorates in Jordan
 - Using concentrated solar energy in cutting operation techniques
 - The effect of the cutting fluid flow rate on the surface finishing of the cutting operation
- 2017**
- Study of Heat Transfer from Tube Heat Exchanger

Publications:

[SCOPUS](#)

[Research Gate](#)

[Google Scholar](#)

H-Index: 20

H-Index: 21

H-Index: 25

➤ Journals Articles:

- [1] **Saad S. Alrwashdeh**, “Energy profit evaluation of a photovoltaic system from a selected building in Jordan”. Results in Engineering, 2023. 13: p. 101177.
- [2] **Saad S. Alrwashdeh**, “The effect of thermal efficiency on the energy production of a solar parabolic trough system in Amman-Jordan”. ARPN Journal of Engineering and Applied Sciences, 2023. (18).2: Pages:113-120.
- [3] **Saad S. Alrwashdeh**, Handri D. Ammari, Yazeed S. Jweihan, Jenan Abu-Qadourah, Al-Falahat A.M, Mazen J. Al-Kheetan, “Refurbishment of existing building toward a surplus energy building in Jordan”. Open Construction and Building Technology Journal, 2022. (16).1: Pages:1-13.
- [4] **Saad S. Alrwashdeh**, Al-Falahat A.M, Henning Markötter, Ingo Manke “Visualization of water accumulation in micro porous layers in polymer electrolyte membrane fuel cells using synchrotron phase contrast tomography”. Case Studies in Chemical and Environmental Engineering, 2022. (6): Pages:1-5.
- [5] **Saad S. Alrwashdeh**, Abu Qadourah J, Al-Falahat A.M, “Investigation of the Effect of Roof Color on the Energy Use of a Selected House in Amman, Jordan”. Frontiers in Mechanical Engineering, 2022. (8): Pages:1-7.
- [6] Alsarayreh, Alanood, Al-Obaidi, Mudhar, **Saad S. Alrwashdeh**, Patel, Rajd;Mujtab, Iqbal M.d, "Enhancement of energy saving of reverse osmosis system via incorporating a photovoltaic system ". Computer Aided Chemical Engineering, 2022. (51): Pages: 697 -702.
- [7] **Saad S. Alrwashdeh**. “Investigation of the effect of the injection pressure on the direct-ignition diesel engine performance”. AIMS Energy, 2022. 10(2), Pages: 340-355.
- [8] Abu Qadourah J, Al-Falahat A.M, **Saad S. Alrwashdeh** “Assessment of solar photovoltaics potential installation into multi-family building’s envelope in Amman, Jordan”. Cogent Engineering, 2022. (9): 1, Pages:1-9.
- [9] Murtadha, Talib K. Dil, Hussein Ali A., Alal wany Ahmed A.H, Saad S. Alrwashdeh, Alalahat Ala M. “Improving the cooling performance of photovoltaic panels by using two passes circulation of titanium dioxide nanofluid”. Case Studies in Thermal Engineering Journal, 2022. (36): 102191, Pages:1-13.
- [10] **Saad S. Alrwashdeh**. “Investigation of the energy output of parabolic trough racks using different rhomboid layout”. ARPN Journal of Engineering and Applied Sciences, 2022. 17(5), Pages: 578-586.
- [11] **Saad S. Alrwashdeh**, “Energy sources assessment in Jordan”. Results in Engineering, 2022. 13: p. 100329.

- [12] Abu Qadourah J, Al-Falahat A.M, **Saad S. Alrwashdeh** “*Investigate the carbon footprints of three intermediate flooring systems: cross-laminated timber, solid concrete, and hollow-core precast concrete*”. Applied Engineering Science, 2022. 20(2), Pages:377-385.
- [13] Yazeed S.Jweihan,..., **Saad S. Alrwashdeh**, “*Improvements to the Duplicate Shear Test (DST) Device for Measuring the Fundamental Shear Properties of Asphalt Concrete Mixes*”. International Journal of Pavement Research and Technology, 2022. p. 1-12
- [14] **Saad S. Alrwashdeh**, Al-Falahat A.M, Talib K. Murtadha. “*Effect of Turbocharger Compression Ratio on Performance of the Spark-Ignition Internal Combustion Engine*”. Emerging Science Journal, 2022. 6(3): p. 482-492.
- [15] Abu Qadourah J, Al-Falahat A.M, **Saad S. Alrwashdeh**, Nytsch Geusen C. “*Improving the energy performance of the typical multi-family buildings in Amman, Jordan*”. City, Territory and Architecture Journal, 2022. 9(1), Pages:1-19.
- [16] Altarawneh O.R., Alsarayreh A.A., Al-Falahat A.M, Al-Kheetan M.J, **Saad S. Alrwashdeh***, “*Energy and exergy analyses for a combined cycle power plant in Jordan*”. Case Studies in Thermal Engineering Journal, 2022. (31): 101858, Pages:1-13.
- [17] Ala’a M. Al-Falahat, Jenan, Abu Qadourah, **Saad S. Alrwashdeh** “*Economic feasibility of heating source conversion of the swimming pools*” Journal of Applied Engineering Science, 2022. 20(1), Pages:230-238.
- [18] **Saad S. Alrwashdeh**, Handri Amari., Mazen A. Madanat, Ala’a M. Al-Falahat, “*The Effect of Heat Exchanger Design on Heat transfer Rate and Temperature Distribution*”. Emerging Science Journal, 2022. 6(1): p. 128-137.
- [19] Ala’a M. Al-Falahat, Jenan, Abu Qadourah, **Saad S. Alrwashdeh**; Rahaf khater, Zaina Qatlama, Emad Alddibs, Mohammad Noor, “*Energy performance and economics assessments of a photovoltaic-heat pump system*” Results in Engineering, 2022. 13: p. 100324.
- [20] **Saad S. Alrwashdeh**, “*Investigation of the energy output from PV panels based on using different orientation systems in Amman-Jordan*”, Case Studies in Thermal Engineering Journal, 2021. (28), 101580, Pages:1-8.
- [21] **Saad S. Alrwashdeh**, Riza Kizilel., “*Comparison of solar energy production using solar panel arrays with a fixed tilt angle, with monthly-adjusted tilt angles, and with south-facing horizontal single-axis tracker at Jeddah-Saudi Arabia*”, International Journal of Renewable Energy and Engineering Research, 2020, (1),1, Pages: 16-23.
- [22] **Saad S. Alrwashdeh**, et al., “*Investigation of water transport dynamics in polymer electrolyte membrane fuel cells based on a new Gas diffusion media GDM layers*”, International Journal of Aerospace and Mechanical Engineering, 2020. (14), 3, Pages: 74-78.
- [23] **Saad S. Alrwashdeh**, Handri Amari, “*Life Cycle Cost Analysis of Two Different Refrigeration Systems Powered by Solar Energy*”. Case Studies in Thermal Engineering Journal, 2019. (16), 100559, Pages:1-11.
- [24] **Saad S. Alrwashdeh**, “*An Energy Production Evaluation from PV Arrays with Different Inter-Row Distances*”. International Journal of Mechanical and Production Engineering Research and Development (IJMPERD), 2019. 9(5), Pages:1-10.

- [25] **Saad S. Alrwashdeh**, " *Energy Production Assessment of Solar Tower Based on the Study of the Mirror Shadowing and Blocking Effects*". Universal Journal of Mechanical Engineering, 2019. 7(2), Pages:71-76.
- [26] A.M. Al-Falahat, N. Kardjilov, T.V. Khanh, H. Markötter, M. Boin, R. Woracek, F. Salvemini, F. Grazzi, A. Hilger, **Saad S. Alrwashdeh**, J. Banhart, I. Manke, " *Energy-selective neutron imaging by exploiting wavelength gradients of double crystal monochromators—Simulations and experiments* ". Nuclear Inst. and Methods in Physics Research, A, 2019. 943(162477), Pages:1-8.
- [27] **Saad S. Alrwashdeh**, " *Energy Output Evaluation from A Photovoltaic System at Different Selected Sites in Jordan*". International Journal of Mechanical and Production Engineering Research and Development (IJMPERD), 2019. 9(2), Pages:467-476.
- [28] **Saad S. Alrwashdeh**, Falah M. Alsaraireh " *Investigation of solar radiation distribution over three zones north, middle and south of Jordan* ". International Journal of Engineering & Technology, 2018. 7(4), Pages:5047-5050.
- [29] **Saad S. Alrwashdeh**, " *Morphology correction technique for tomographic in-situ and operando studies in energy research*". Journal of Power Sources, 2019. 414, Pages: 8-12.
- [30] **Saad S. Alrwashdeh**, " *Investigation of Wind Energy Production at Different Sites in Jordan Using the Site Effectiveness Method*". Energy Engineering Journal, 2019. 116(1), Pages: 47-59.
- [31] **Saad S. Alrwashdeh**, " *Energy Production Evaluation from a Linear Fresnel Reflectors Arrays with Different Array Orientation*". International Journal of Engineering Research and Technology, 2018. 11(11), Pages: 1827-1835.
- [32] **Saad S. Alrwashdeh**, " *Assessment of the energy production from PV racks based on using different Solar canopy form factors in Amman-Jordan*". International Journal of Engineering Research and Technology, 2018. 11(10), Pages: 1595-1603.
- [33] **Saad S. Alrwashdeh**, " *The effect of solar tower height on its energy output at Ma'an-Jordan*". AIMS Energy, 2018. 6(6), Pages: 659-966.
- [34] **Saad S. Alrwashdeh**, " *Predicting of Energy Production of Solar Tower Based on the Study of the Cosine Efficiency and the Field Layout of Heliostats*". International Journal of Mechanical Engineering and Technology (IJMET), 2018. 9(11), Pages: 250–257.
- [35] **Saad S. Alrwashdeh**, " *Investigation of the energy output from PV racks based on using different tracking systems in Amman-Jordan*". International Journal of Mechanical Engineering and Technology (IJMET), 2018. 9(10), Pages: 687–694.
- [36] **Saad S. Alrwashdeh**, Falah M. Alsaraireh " *Wind energy production assessment at different sites in Jordan using probability distribution functions*". ARPN Journal of Engineering and Applied Sciences, 2018. 13(20), Pages: 8163-8172
- [37] **Saad S. Alrwashdeh**, " *Modelling of Operating Conditions of Conduction Heat Transfer Mode Using Energy 2D Simulation*". International Journal of Online Engineering (iJOE), 2018. 1499, Pages: 200-207.
- [38] M. Göbel, S. Kirsch, L. Schwarze, L. Schmidt, H. Scholz, J. Haußmann, M. Klages, J. Scholta, H. Markötter, **Saad S. Alrwashdeh**, I. Manke, B.R. Mülle, " *Transient limiting current measurements for characterization of gas diffusion layers*". Journal of Power Sources, 2018. 402, Pages: 237-245.

- [39] **Saad S. Alrwashdeh**, et al., " *In-situ investigation of water distribution in polymer electrolyte membrane fuel cells using high-resolution neutron tomography with 6.5 μm pixel size*". AIMS Energy, 2018. 6(4), Pages: 607-614.
- [40] **Saad S. Alrwashdeh**, " *Solar radiation Map of Jordan governorates* ". International Journal of Engineering & Technology, 2018. 7(3), Pages:1664-1667.
- [41] **Saad S. Alrwashdeh**, " *Map of Jordan governorates wind distribution and mean power density*". International Journal of Engineering & Technology, 2018. 7(3), Pages:1495-1500.
- [42] **Saad S. Alrwashdeh**, "*Comparison among Solar Panel Arrays Production with a Different Operating Temperatures in Amman-Jordan*". International Journal of Mechanical Engineering and Technology (IJMET), 2018. 9(6), Pages:420-429.
- [43] **Saad S. Alrwashdeh**, "*Assessment of Photovoltaic Energy Production at Different Locations in Jordan*" International Journal of Renewable Energy Research (IJRER), 2018.8(2) 797-804.
- [44] Ala'a M. Al-Qudah, Shady S. Alnawasreh, Mazen A. Madanat, Oliwia Trzaska, Danuta Matykiewicz, **Saad S. Alrwashdeh**, Mark J. Hagmann, Marwan S. Mousa. " *Characterization of Composite Electron Sources (Metal -Insulator -Vacuum)*" Jordan Journal of Physics,2018, Volume 11, Number 1. pp. 59-68.
- [45] Mohammad A. Saraireh, Falah M. Alsarairah, and **Saad S. Alrwashdeh**, "*INVESTIGATION OF HEAT TRANSFER FOR STAGGERED AND IN-LINE TUBS*" International Journal of Mechanical Engineering and Technology, 2017.8(11) 476-483.
- [46] Ince, Utku U., Henning Markötter, Michael G. George, Hang Liu, Nan Ge, Jongmin Lee, **Saad S. Alrwashdeh**, Roswitha Zeis, Matthias Messerschmidt, Joachim Scholta, Aimy Bazylak, and Ingo Manke. "Effects of compression on water distribution in gas diffusion layer materials of PEMFC in a point injection device by means of synchrotron X-ray imaging", International Journal of Hydrogen Energy. 2017, 43: 391-406.
- [47] **Saad S. Alrwashdeh**, et al., "*Investigation of Water Transport in Newly Developed Micro Porous Layers for Polymer Electrolyte Membrane Fuel Cells*" Applied Microscopy Journal, 2017.10.9729/AM.2017.47.3.101.
- [48] **Saad S. Alrwashdeh**, et al., "*Neutron radiographic in operando investigation of water transport in polymer electrolyte membrane fuel cells with channel barriers*" Energy Conversion and Managements, 2017.148(C) pp.604-610.
- [49] **Saad S. Alrwashdeh**, et al., "*In Operando Quantification of Three-Dimensional Water Distribution in Nanoporous Carbon-Based Layers in Polymer Electrolyte Membrane Fuel Cells.*" ACS Nano, 2017. 11, 5944-5949.
- [50] **Saad S. Alrwashdeh**, et al., "*Improved Performance of Polymer Electrolyte Membrane Fuel Cells with Modified Microporous Layer Structures.*" Energy Technology, 2017.n/a-n/a.
- [51] Mohammad I. Al-Najideen, **Saad S. Alrwashdeh**. "*Design of a solar photovoltaic system to cover the electricity demand for the faculty of Engineering- Mu'tah University in Jordan.*" Resource-Efficient Technologies, 2017. (1-6).

- [52] Ala'a M. Al-Qudah, Shady S. Alnawasreh, Mazen A. Madanat, Oliwia Trzaska, Danuta Matykiewicz, **Saad S. Alrwashdeh**, Mark J. Hagmann, Marwan S. Mousa. *"The Effects of Dielectric Coatings on Electron Emission from Tungsten."* Applied Microscopy, 2017. 47(1):36-42.
- [53] Sun, F., H. Markötter, I. Manke, A. Hilger, **Saad S. Alrwashdeh**, N. Kardjilov and J. Banhart. *"Complementary X-ray and neutron radiography study of the initial lithiation process in lithium-ion batteries containing silicon electrodes."* Applied Surface Science, 2017. 399: 359-366.
- [54] **Saad S. Alrwashdeh**, et al., *"X-ray Tomographic Investigation of Water Distribution in Polymer Electrolyte Membrane Fuel Cells with Different Gas Diffusion Media."* ECS Transactions, 2016. 72(8): 99-106.
- [55] Sun, F., H. Markotter, D. Zhou, **Saad S. Alrwashdeh**, A. Hilger, N. Kardjilov, I. Manke and J. Banhart. *"In Situ Radiographic Investigation of (De) Lithiation Mechanisms in a Tin-Electrode Lithium-Ion Battery."* ChemSusChem, 2016. 9(9): 946-950.
- [56] **Saad S. Alrwashdeh**, et al., *"Investigation of water transport dynamics in polymer electrolyte membrane fuel cells based on high porous micro porous layers."* Energy, 2016. **102**: p. 161-165.
- [57] Ammari, H.D., **Saad S. Alrwashdeh**, and M.I. Al-Najideen, *"Evaluation of wind energy potential and electricity generation at five locations in Jordan."* Sustainable Cities and Society, 2015. 15: p. 135-143.

➤ Conferences Articles:

- [1] **Saad S. Alrwashdeh**, et al. (2022), *"The effect of thermal efficiency on the energy production of a solar parabolic trough system in Amman-Jordan"*, International Conference on Mechanical, Martial and Renewable Energy (ICMMRE), Nuremberg – Germany.
- [2] **Saad S. Alrwashdeh**, et al. (2021), *"Quantification of dynamic water accumulation in the gas diffusion media GDM in the polymer electrolyte membrane fuel cells PEMFCs using synchrotron X-ray"*, 1110th International Conference on Science, Technology, Engineering and Management (ICSTEM), Istanbul – Turkey.
- [3] **Saad S. Alrwashdeh**, et al. (2021), *"Synchrotron tomography imaging in materials science"*, International Conference on Applied and Practical Sciences (ICAPPRSC-21), Berlin – Germany.
- [4] **Saad S. Alrwashdeh**, et al. (2020), *"Investigation of water transport dynamics in polymer electrolyte membrane fuel cells based on a new Gas diffusion media GDM layers"*, International Conference on Mechanical and Aeronautics Engineering (ICMAE), Odessa – Ukraine.
- [5] **Saad S. Alrwashdeh**, et al. (2017), *Neutron imaging in materials research*, Int. Conf./ Humboldt Kolleg "Jordanian Life Sciences Conference for Sustainable Development", Amman – Jordan.
- [6] **Saad S. Alrwashdeh**, et al. (2016), *IN-Operando Characterization of PEMFCs Water Transport Using Neutron Radiography*, 8th BESSY II and BER II User Conference, Berlin – Germany.

- [7] Alaa M. Al-Falahat, Nikolay Kardjilov, Robin Woracek, Ingo Manke, Henning Markotter, Mirko Boin, **Saad S. Alrwashdeh**, Tran V. Khanh and John Banhart. (2016), *Neutron Bragg-Edge Imaging of Annealed Copper Samples*, 8th BESSY II and BER II User Conference, Berlin – Germany.
- [8] Tran V. Khanh, Robin Woracek, Stephen Pupilampu, Dayakar Penumadu, Nikolay Kardjilov, Andre Hilger, Henning Markotter, **Saad S. Alrwashdeh**, Alaa M. Al-Falahat and Ingo Manke. (2016), *Phase and Texture Evaluation in Dual-Phase Steel by Neutron Bragg-Edge Imaging*. 8th BESSY II and BER II User Conference, Berlin – Germany.
- [9] **Saad S. Alrwashdeh**, et al. (2016), *Water Transport Dynamics inside Polymer Electrolyte Membrane Fuel Cells with Highly Porous Microporous Layer*, 229th Electrochemical Society Conference, CA-USA.
- [10] **Saad S. Alrwashdeh**, et al. (2016), *Investigation of water transport inside polymer electrolyte membrane fuel cells with modified microporous layers*, 5th Global Conference on Renewables and Energy Efficiency for Desert Regions (GCREEDER), University of Jordan, Amman-Jordan.
- [11] **Saad S. Alrwashdeh**, et al. (2015), *IN-Operando Characterization of PEMFCs Using Synchrotron X-Ray Radiography and Tomography*, 7th BESSY II and BER II User Conference, Berlin – Germany.
- [12] **Saad S. Alrwashdeh**, et al. (2015), *IN-Operando Characterization of PEMFCs Using Synchrotron X-Ray Radiography*, BESSY II Imaging Conference, Berlin – Germany.
- [13] I. Manke, A. Hilger, **Saad S. Alrwashdeh**, F. Sun, N. Kardjilov and J. Banhart. (2015), *Synchrotron X-Ray Imaging in Energy Research*, BESSY II Imaging Conference, Berlin – Germany.
- [14] Ammari H., **Saad S. Alrwashdeh**. and Al-Najideen M. (2013), *Evaluation of Wind Energy Potential and Electricity Generation in Jordan*, 4th Global Conference on Renewables and Energy Efficiency for Desert Regions (GCREEDER), University of Jordan, Amman-Jordan

➤ **Books:**

- [1] Alsarayreh, Alanood A, Al-Obaidi, Mudhar A, **Saad S. Alrwashdeh**, Patel, Raj, Mujtaba, Iqbal M.d *Enhancement of energy saving of reverse osmosis system via incorporating a photovoltaic system*. Computer Aided Chemical Engineering, (51). 2022.

References: Available Upon Request.