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Mechanical Engineering Department
Faculty of Engineering Mutah University
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Personal:

Marital Status: Married.

Date of Birth: 09/11/1984.

Nationality: Jordanian.

Place of Birth: Madaba-Jordan.

Languages: Arabic (mother language).

English (Excellent; speaking, writing and reading).

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Academic Rank: Assistant professor

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Google Scholar Profile: <https://scholar.google.com/citations?user=XtuUkdgAAAAJ&hl=en>

ResearchGate Profile: <https://www.researchgate.net/profile/Alaa-Al-Falahat>

EDUCATION

2015-2019: Technical University Berlin, Berlin, Germany

Ph.D. in Mechanical Engineering

Thesis title: Wavelength-selective Neutron Imaging for Materials Science

Supervisor: Prof. John Banhart

2009 – 2012: Jordan University, Jordan, Amman

M.Sc. in Mechanical Engineering.

Thesis title: Engine performance powered by a mixture of hydrogen and oxygen fuel obtained from water electrolysis.

Supervisors: Prof. Mohammad Hamdan, Jehad Yamin

2002 – 2007: Mutah University, Alkarak, Jordan

B.Sc. in Mechanical Engineering

Project title: Engineering Mechanics Graduation Project: Design of helical gear using Visual Basic program.

Supervisor: Dr. Ibrahim Alkhazali

RESEARCH INTEREST

- Mechanical Control system, - Mechanical Vibration, - Kinematics and kinetics
- Material characterization, - Theory of machines, - Dynamics and controls
- Material Science, - Microstructure and phase transformation, - Neutron Imaging,
- Neutron Scattering/Diffraction

Scholarship and Grants

- Full scholarship from Mutah University, PhD, Technical University, Berlin – Germany, between 2015 to 2019
- Mutah University Grant No. 428/2021. "Recycling of materials industrial waste into a new composite alloy using the sintering technique", Fund of 250000 USD. Jordan.

WORK EXPERIENCE

Oct. 2023- Present: Head of a mechanical engineering department
Sep. 2019 – Present: Assistant Professor- Mutah University
Sep. 2012- Sep. 2014: Lecturer at the department of mechanical engineering /Mutah University
Sep. 2008- Sep. 2009: Teacher assistant at Jordan University
2010-2012: Tanfeeth Contracting Company, Design Engineer
2007-2010: Al-Awabeen contracting company, Design Engineer

COURSE TAUGHT

Mechanical Vibration, Mechanical Control, Theory of machines, Engineering Mechanics, Dynamics, Probabilities and Statistics for Engineering, Engineering analysis and Numerical methods

SOFTWARE SKILLS

MATLAB, Origin Lab, McStas, Visual Basic, Ansys, AutoCAD 2D and 3D

PUBLICATIONS (Scopus H-Index: 11)

[1] **A. Al-Falahat**, N. Kardjilov, T. K. Murtadha, R. Woracek, S. Alrwashdeh, and I. Manke, "Higher order correction and spectral deconvolution of wavelength-resolved neutron transmission imaging at the CONRAD-2 instrument," Results in Optics, Article vol. 12, 2023, Art no. 100480, doi: 10.1016/j.rio.2023.100480.

[2] **A. Al-Falahat**, "Analysis and modelling of the rotor dynamics of a composite hollow shaft using finite element techniques," International Journal of Advanced Technology and Engineering Exploration, Article vol. 10, no. 101, pp. 485-497, 2023, doi: 10.19101/IJATEE.2022.10100553.

- [3] J. A. Qadourah, **A. M. Al-Falahat**, and S. S. Alrwashdeh, "INVESTIGATE THE CARBON FOOTPRINTS OF THREE INTERMEDIATE FLOORING SYSTEMS: CROSS-LAMINATED TIMBER, SOLID CONCRETE, AND HOLLOW-CORE PRECAST CONCRETE," *Journal of Applied Engineering Science*, Article vol. 20, no. 2, pp. 377-385, 2022, doi: 10.5937/jaes0-32783.
- [4] T. K. Murtadha, A. A. Dil Hussein, A. A. H. Alalwany, S. S. Alrwashdeh, and **A. M. Al-Falahat**, "Improving the cooling performance of photovoltaic panels by using two passes circulation of titanium dioxide nanofluid," *Case Studies in Thermal Engineering*, Article vol. 36, 2022, Art no. 102191, doi: 10.1016/j.csite.2022.102191.
- [5] O. R. Altarawneh, A. A. Alsarayreh, **A. M. Al-Falahat**, M. J. Al-Kheetan, and S. S. Alrwashdeh, "Energy and exergy analyses for a combined cycle power plant in Jordan," *Case Studies in Thermal Engineering*, Article vol. 31, 2022, Art no. 101852, doi: 10.1016/j.csite.2022.101852.
- [6] S. S. Alrwashdeh, J. A. Qadourah, and **A. M. Al-Falahat**, "Investigation of the Effect of Roof Color on the Energy Use of a Selected House in Amman, Jordan," *Frontiers in Mechanical Engineering*, Article vol. 8, 2022, Art no. 897170, doi: 10.3389/fmech.2022.897170.
- [7] S. S. Alrwashdeh, H. Ammari, M. A. Madanat, and **A. M. Al-Falahat**, "The Effect of Heat Exchanger Design on Heat transfer Rate and Temperature Distribution," *Emerging Science Journal*, Article vol. 6, no. 1, pp. 128-137, 2022, doi: 10.28991/ESJ-2022-06-01-010.
- [8] S. S. Alrwashdeh, H. Ammari, Y. S. Jweihan, J. A. Qadourah, M. J. Al-Kheetan, and **A. M. Al-Falahat**, "Refurbishment of Existing Building toward a Surplus Energy Building in Jordan," *Open Construction and Building Technology Journal*, Article vol. 16, no. 1, 2022, Art no. e187483682208150, doi: 10.2174/18748368-v16-e2208150.
- [9] S. S. Alrwashdeh, **A. M. Al-Falahat**, and T. K. Murtadha, "Effect of Turbocharger Compression Ratio on Performance of the Spark-Ignition Internal Combustion Engine," *Emerging Science Journal*, Article vol. 6, no. 3, pp. 482-492, 2022, doi: 10.28991/ESJ-2022-06-03-04.
- [10] S. S. Alrwashdeh, **A. M. Al-Falahat**, H. Markötter, and I. 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*, Article vol. 6, 2022, Art no. 100260, doi: 10.1016/j.cscee.2022.100260.
- [11] **A. M. Al-Falahat** et al., "Energy performance and economics assessments of a photovoltaic-heat pump system," *Results in Engineering*, Article vol. 13, 2022, Art no. 100324, doi: 10.1016/j.rineng.2021.100324.
- [12] **A. M. Al-Falahat**, J. A. Qadourah, and S. S. Alrwashdeh, "ECONOMIC FEASIBILITY OF HEATING SOURCE CONVERSION OF THE SWIMMING POOLS," *Journal of Applied Engineering Science*, Article vol. 20, no. 1, pp. 230-238, 2022, doi: 10.5937/jaes0-34474.

- [13] **A. M. Al-Falahat** et al., "Temperature dependence in Bragg edge neutron transmission measurements," *Journal of Applied Crystallography*, Article vol. 55, pp. 919-928, 2022, doi: 10.1107/S1600576722006549.
- [14] **A. M. Al-Falahat**, "IMPLEMENTATION OF THE DYNAMIC BALANCING APPROACH OF A ROTATING COMPOSITE HOLLOW SHAFT," *EUREKA, Physics and Engineering*, Article vol. 2022, no. 2, pp. 68-73, 2022, doi: 10.21303/2461-4262.2022.002336.
- [15] J. Abu Qadourah, **A. M. Al-falahat**, and S. S. Alrwashdeh, "Assessment of solar photovoltaics potential installation into multi-family building's envelope in Amman, Jordan," *Cogent Engineering*, Article vol. 9, no. 1, 2022, Art no. 2082059, doi: 10.1080/23311916.2022.2082059.
- [16] J. Abu Qadourah, **A. M. Al-Falahat**, S. S. Alrwashdeh, and C. Nytsch-Geusen, "Improving the energy performance of the typical multi-family buildings in Amman, Jordan," *City, Territory and Architecture*, Article vol. 9, no. 1, 2022, Art no. 6, doi: 10.1186/s40410-022-00151-8.
- [17] **A. M. Al-Falahat**, "Examination of the Dynamic Behaviour of the Composite Hollow Shafts Subject to Unbalance," *International Journal of Mechanical Engineering and Robotics Research*, Article vol. 10, no. 10, pp. 572-576, 2021, doi: 10.18178/ijmerr.10.10.572-576.
- [18] **A. M. Al-Falahat** et al., "Correction approach of detector backlighting in radiography," *Review of Scientific Instruments*, Article vol. 90, no. 12, 2019, Art no. 5097170, doi: 10.1063/1.5097170.
- [19] **A. M. Al-Falahat** et al., "Energy-selective neutron imaging by exploiting wavelength gradients of double crystal monochromators—Simulations and experiments," *Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, Article vol. 943, 2019, Art no. 162477, doi: 10.1016/j.nima.2019.162477.
- [20] S. S. Alrwashdeh **et al.**, "Neutron radiographic in operando investigation of water transport in polymer electrolyte membrane fuel cells with channel barriers," *Energy Conversion and Management*, Article vol. 148, pp. 604-610, 2017, doi: 10.1016/j.enconman.2017.06.032.
- [21] S. S. Alrwashdeh **et al.**, "Improved Performance of Polymer Electrolyte Membrane Fuel Cells with Modified Microporous Layer Structures," *Energy Technology*, Article vol. 5, no. 9, pp. 1612-1618, 2017, doi: 10.1002/ente.201700005.
- [22] **A. M. Falahat**, M. A. Hamdan, and J. A. Yamin, "Engine performance powered by a mixture of hydrogen and oxygen fuel obtained from water electrolysis," *International Journal of Automotive Technology*, Article vol. 15, no. 1, pp. 97-101, 2014, doi: 10.1007/s12239-014-0011-0.

REFERENCES:

1-Dr John Bahnhart

<http://www.johnbanhart.de/>

2- Dr Ingo Manke

<https://research.com/u/ingo-manke>

3- Mohammad Hammdan

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