

Name: Ahmad H. Alsabbagh
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EDUCATION

PhD in Nuclear Engineering 2014
GPA: 4.0/4.0
North Carolina State University, Raleigh NC
Dissertation: “*Effect of Neutron Irradiation on Mechanical Behavior of Ultra-Fine Grained Low Carbon Steel – Application to Next Generation Fission Reactors*”

Master of Nuclear Engineering 2011
North Carolina State University, Raleigh NC
Research: “*Developing Neutron Tomography Capabilities at PULSTAR Reactor*”

Bachelor of Science in Electrical Engineering 2008
University of Jordan, Amman Jordan

EXPERIENCE

Secretary-General July 2021 – Present
Jordan Atomic Energy Commission

Commissioner May 2018 – Present
Commissioner for Nuclear Fuel Cycle at Jordan Atomic Energy Commission

Jordan National Liaison Officer June 2022 – Present
International Atomic Energy Commission

Technical Working Group Member 2023 – Present
IAEA Technical Working Group on Radioactive Waste Management and Technologies (TWG-WATEC) for the 2023 to 2026 term.

Committee Chairman July 2018 – July 2023
Jordanian Research and Training Reactor (JRTR) safety committee

Associate Professor Sep 2019 – Present
Nuclear Engineering Department, Jordan University of Science and Technology

Assistant Professor Sep 2014 – Sep 2019
Nuclear Engineering Department, Jordan University of Science and Technology

Committee Member Feb 2016 – July 2018
Jordanian Research and Training Reactor (JRTR) safety committee

Committee Chairman Sep 2016 – Sep 2017
Scientific Research Committee. Department of Nuclear Engineering at Jordan University of Science and Technology.

Research Assistant 2009 – 2014
North Carolina State University, Raleigh NC

RESEARCH GRANTS

Successfully acquired funded research from various institutions/sources:

The Deanship of Research at Jordan University of Science and Technology

- PI on a successful proposal granted for “A study of lithium pre-concentration and extraction from Dead Sea End Brines”. **2020**
- Co-PI on a successful proposal granted for “Wastewater Treatment Using Gamma Radiation”. **2018**
- PI on a successful proposal granted for “Consequences of Gamma Irradiation on Polyethylene”. **2017**
- PI on a successful proposal granted for “Phytoremediation of Jordanian Uranium Contaminated Soil”. **2016**

King Abdullah II fund for Development – KAFD

- Co-PI on a successful proposal granted for “Fabrication of Composite Material for Radiation Shielding”. **2019**
- Co-PI on a successful proposal granted for “Metallic Nanoparticles Fabrication for Semiconductors Detectors”. **2016**

The Applied Scientific Research Award offered by JOSCO and Engicon Companies in Jordan

- PI on a successful proposal granted for “Investigation of Radon Effective Dose in Jordanian Areas of Noticeable Uranium Concentrations”. **2015**

Advanced Test Reactor (ATR) National Science User Facility at Idaho National Laboratory

- Co-PI on a successful proposal granted for “Post Irradiation Examination of ATR-irradiated Ultra-Fine Grained Steel”. **2013**
- Co-PI on a successful proposal granted for “Effects of neutron irradiation on mechanical and microstructural properties of nanocrystalline materials”. **2012**

PUBLICATIONS / PEER-REVIEWED JOURNAL ARTICLES

- Alameer, S., Boria, E., **Alsabbagh, A.**, Alzobi, R. Rapid extractive scintillation method for uranium measurement in soil samples. *Journal of Radioanalytical and Nuclear Chemistry* (2024). <https://doi.org/10.1007/s10967-024-09558-8>.
- A. Alsabbagh**, R. Mustafa, *Wet gravity separation and froth floatation techniques for rare earth elements beneficiation from monazite ore in Jordan*, *Heliyon*, 9, (2023) 19597.
- R Abu Saleem, N Abdelal, **A Alsabbagh**, M Al-Jarrah, F Al-Jawarneh, *Effect of lead nanoparticles on the radiation shielding characteristics of carbon fiber/epoxy composites*, *Journal of Reinforced Plastics and Composites*, 42, (2023) 483-493.
- S. Aljarrah, **A. Alsabbagh**, M. Almahasneh, *Selective Recovery of Lithium from Dead Sea End Brines Using UBK10 Ion Exchange Resin*, *Canadian Journal of Chemical Engineering*, 101, (2023) 1185-1194 .
- N. Abdelal, R. Abu Saleem, **A. Alsabbagh**, M. Aljarrah, F. Aljawarneh, *Radiation and lead nanoparticles effects on the mechanical properties of unidirectional carbon fiber/epoxy composites*, *Journal of Composite Materials*, 56, (2022) 2653-2664.
- R. Abu Saleem, N. Abdelal, **A. Alsabbagh**, M. Aljarrah, F. Aljawarneh, *Radiation Shielding of Fiber Reinforced Polymer Composites Incorporating Lead Nanoparticles- An Empirical Approach*, *Polymers* 13, (2021) 3699.
- A. Alsabbagh**, S. Aljarrah, M. Almahasneh, *Lithium enrichment optimization from Dead Sea end brine by chemical precipitation technique*, *Minerals Engineering* 170, (2021) 107038.
- A. Alsabbagh**, R. Abu Saleem, R. Almasri, S. Aljarrah & S. Awad, *Effects of gamma irradiation on 3D-printed polylactic acid (PLA) and high-density polyethylene (HDPE)*, *Polym. Bull.* 78, (2021) 4931–4945.
- R. Abu Saleem, **A. Alsabbagh**, H. Al-Khodire, and I. Batayneh, *Investigation of the Effects of Different Experimental Conditions on the Final Product of a Chemical Reduction Method Used to Fabricate Silver Nanoparticles*, *Trans. Indian Inst. Met* 72 (2019) 3241–3248.
- A. Alsabbagh**, S. Alzghoul, S. Marashdeh, R. Abu Saleem. *Examination of fault zones and uranium concentration effects on the in-soil radon levels at Central Jordan Area*, *Journal of Radioanalytical and Nuclear Chemistry* 317 (2018) 511–517.
- A. Alsabbagh**, Khalayleh, L., Dbissi, M. and Landsberger, S. *An Assessment Study in the Determination of Chemical Elements in Sediments and Fish in the Zarka River and King Talal Dam, Jordan*, *Journal of Radioanalytical and Nuclear Chemistry* 314 (2017) 141-147.
- A. Alsabbagh**, and T. Abuqudaira, *Phytoremediation of Jordanian Uranium-Rich Soil Using Sunflower*, *Water, Air, & Soil Pollution*, 228 (2017), 219.

A. Alsabbagh, L. Zaidan, I. Harahsheh, N. Ba Sunbul & S. Landsberger. *Investigation of Jordanian uranium resources in carbonate rocks*, Journal of Radioanalytical and Nuclear Chemistry, 308 (2016) 1063–1070.

A. Alsabbagh, A. Sarkar, B. Miller, J. Burns, L. Squires, D. Porter, J. Cole and K. Murty. *Microstructure and Mechanical Behavior of Neutron Irradiated Ultrafine Grained Ferritic Steel*, Materials Science & Engineering A615 (2014) 128–138.

Sarkar, A., **Alsabbagh**, A., Murty, K.. *Investigation of microstructure and mechanical properties of low dose neutron irradiated HT-9 steel*. Annals of Nuclear Energy, 65 (2014) 91–96.

Alsabbagh, A., Valiev, R. Z., & Murty, K. L. *Influence of grain size on radiation effects in a low carbon steel*. Journal of Nuclear Materials, 443 (2013) 302–310.

PUBLICATIONS / TRANSACTIONS AND CONFERENCES PRESENTATIONS

Alsabbagh, A., Mustafa, R. *Remediation and Retrieval of Legacy Radioactive Waste Stored at Sewaqa Site in Jordan*. International Conference on the Safety of Radioactive Waste Management, Decommissioning, Environmental Protection and Remediation: Ensuring Safety and Enabling Sustainability, Nov 2023, Vienna , Austria. **2023**

Alsabbagh, A., Mustafa, R. *Dismantling and Removal of Cs-137 Blood Irradiator from Jordanian Hospitals*. International Conference on Radioactive Waste Management: Solutions for a Sustainable Future, Nov 2021, Vienna , Austria. **2021**

Khreis, R., Omari R., **Alsabbagh**, A. *Investigating the Shielding Effectiveness for a Dry Storage Cask Using MCNP Code*. European Research Reactors Conference RRFM 2019, DeadSea, Jordan. **2019**

Alsabbagh, A., M. Al-Dbissi, E. Smadi, L. Khalayleh, *Neutronic Consequences for Parameters Perturbation at the Jordanian Subcritical Assembly*. Transaction of the American Nuclear Society, 115, 240–243. **2017**

Kumar, N, **A. Alsabbagh**, C. S. Seok and K. L. Murty, *Synergistic Effects of Neutron Irradiation and Interstitial Nitrogen on Strain Aging in Ferritic Steels*. Mechanical and Creep Behavior of Advanced Materials. **2017**

Ahmad Alsabbagh, Ruslan Valiev, K. L. Murty. *Consequences of Neutron Irradiation on ECAP Steel*. TMS Annual Meeting & Exhibition, San Diego CA. **2014**

Ahmad Alsabbagh, Ruslan Valiev, K. L. Murty. *Influence of Neutron Irradiation on Equal Channel Angular Pressed Structural Steel*. MS&T'13, Montreal, Canada. **2013**

Ahmad Alsabbagh, Ruslan Valiev, K. L. Murty. *Neutron Irradiation Effect on ECAP'ed Steel*. TMS Annual Meeting & Exhibition, San Antonio. **2013**

Alsabbagh, A. H., & Murty, K. L. *Effect of Neutron Irradiation on Ultra-Fine Grained Steel*. Transaction of the American Nuclear Society, 107, 456–457. **2012**

Alsabbagh, A. H., Xiao, Z., & Hawari, A. I. *Developing Neutron Tomography Capabilities at the PULSTAR Reactor*. Transaction of the American Nuclear Society, 103, 229–230. **2010**

ACADEMIC AND PROFESSIONAL ACTIVITIES

Participated in the technical working group meeting on radioactive waste management and technologies (TWG- WATEC) in the International Atomic Energy Agency.

Location: Vienna, Austria

Date: March 25-28, 2024

Led the Jordanian delegation and participated in project design discussions with the technical officers at the Coordination Meeting for the national Jordanian projects with the International Atomic Energy Agency.

Location: Vienna, Austria

Date: Feb 20-22, 2024

Presented on “The Journey of the Second Arabic Language PGEC in Jordan - A Thorough Insight into Preparation, Lessons Learned, Recommendations, and Success” at the 22nd Meeting of the Steering Committee on Education and Training in Radiation, Transport and Waste Safety”

Location: Vienna, Austria

Date: December 11 – December 15, 2023

Presented on the "Management of Disused Sealed Radioactive Sources in Jordan" at the IAEA First Annual Technical Meeting of the Disused Sealed Radioactive Sources Network (DSRS Net).

Location: Vienna, Austria

Date: August 28 – September 1, 2023

Invited to present the Jordanian experience in conducting the Postgraduate Educational Course in Radiation Protection and the Safety of Radiation Sources (PGEC) at the Indonesian National Research and Innovation Agency

Location: Yogyakarta, Indonesia

Date: 15-17 March, 2023

Led the Jordanian delegation and presented the national report at the 7th Review Meeting for the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management at the IAEA.

Location: Vienna, Austria

Date: May 4-6, 2022

Chaired a Side-Event in the International Conference on Radioactive Waste Management: Solutions for a Sustainable Future, titled "Member State Updates and Progress in the Management of Disused Sealed Radioactive Sources (DSRS) and the Global Path Forward."

Location: Vienna, Austria

Date: November 2, 2021

Participated in the Jordanian delegation to the International Atomic Energy Agency (IAEA) consultancy meeting to review and update the Integrated Work Plan (IWP) for Jordan.

Location: Vienna, Austria

Date: February 10-12, 2020

Presented on the "Status of Safety Case for the Disposal Management and Storage of DSRS at the National Centralized Storage Facility (CSF) in The Hashemite Kingdom of Jordan" at the IAEA Radioactive Waste Management: Safety Case Update Meeting.

Location: Arusha, Tanzania

Date: September 2-6, 2019

Invited as a panelist in a panel discussion organized by the Vienna Centre for Non-Proliferation (VCDNP) to provide Vienna diplomats with an opportunity to engage with IAEA Member State experts on the end-of-life management of sealed radioactive sources.

Location: Vienna, Austria

Date: July 17, 2019

Presented on the "Jordanian Regulations for safety requirements of working activities involving the presence of natural radioactive materials" at the IAEA Regional Workshop on Good Practices on NORM Residues and Waste Management.

Location: Kuwait

Date: March 10-14, 2019

Presented about the "Opportunities and Issues in Non-Electric Applications of Nuclear Energy, Exploring Opportunities in Jordan" at the IAEA INPRO Dialogue Forum on Opportunities and Issues in Non-Electric Applications of Nuclear Energy.

Location: Vienna, Austria

Date: December 12-14, 2018

Organized and participated in an IAEA Expert Mission on Developing a Stakeholder Involvement Strategy and Plan and Public Awareness Program in Jordan.

Location: Amman, Jordan

Date: October 15-18, 2018

Led the Jordanian delegation and presented the first Jordanian report at the 6th Review Meeting for the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, held at the IAEA.

Location: Vienna, Austria

Date: May 20 - June 1, 2018

Attended the ICTP-IAEA Workshop on "Research Reactors for Development of Materials and Fuels for Innovative Nuclear Energy Systems" and presented on the "Theory and Practice of the Fuel and Material Tests in MTR Reactors."

Location: Trieste, Italy

Date: November 5-9, 2017

Attended the Thirteenth Arab Conference on the Peaceful Uses of Atomic Energy and presented on "Phytoremediation of Jordanian Uranium-Contaminated Soil Using Sunflower."

Location: Hammamet, Republic of Tunisia

Date: December 18-22, 2016

Attended the Regional Workshop for Developing MOODLE-based e-Training Course Creation Process Model.

Location: Daejeon, Republic of Korea

Date: 31st October – 4th November 2016

Successfully completed e-Training Course on How to Develop Nuclear e-Learning Content . Organized by the Korea Atomic Energy Research Institute and the ANENT Member States Committee from 5th Oct. to 26th Oct 2015.

Successfully completed e-Training Course on How to Use the ANENT Regional Learning Management System. Organized by the Korea Atomic Energy Research Institute and the ANENT Coordination Committee from 15th Oct. to 14th Nov 2014.

TEACHING AND COURSES TAUGHT

Nuclear Reactors Analysis

Nuclear Reactors Theory

Materials Science and Engineering

Non-power Applications for Nuclear Energy

Engineering Measurements Lab

HONORS AND AWARDS

Distinguished Global Alumni Award, Finalist, North Carolina State University (**May 2022**).

The American Nuclear Society (ANS) Mark Mills Award, for submitting the best original technical paper contributing to the advancement of science and engineering related to the atomic nucleus. (**August 2014**).

The award of excellence in teaching at the Outstanding TA Award Ceremony organized by the University Graduate Student Association and the Teaching Effectiveness Committee at North Carolina State University. (**March 2014**).

The Golden Neutron Award at the sixth annual Advanced Test Reactor National Scientific User Facility (ATR NSUF) at Idaho National Laboratory. (**June 2013**).

EXTRACURRICULAR ACTIVITIES

The Arab Foundation for Sustainable Development (Ruwwad) 2016 – Present

A volunteer in the community support program to help Jordanian youth to access university education as well as soft skills, psychosocial support, and business skills.

Orientation Team Member

2009 – 2014

Office of International Students

NC State University, Raleigh NC

Member of the All-Jordan Youth Commission

2008 – 2009

University Student Council Member

2005 – 2006

University of Jordan, Amman Jordan

SKILLS

- Monte Carlo N-Particle (MCNP) licensed.
- Fluent in English & Arabic

PROFESSIONAL MEMBERSHIP

Jordan Engineering Association
American Nuclear Society