

Bader Almutairi – Resume

Address	Al-Jaheth Street, Shuwaikh, Kuwait	Mobile Phone	+965 6556-5855
Date of Birth	7 th February 1983	Email	bamutairi@kisir.edu.kw
Nationality	Kuwaiti		

Personal Profile

Education

- 2015-2020** Ph.D. in Nuclear Engineering - Missouri University of Science and Technology, MO, USA
Thesis Topic: Characterization of Neutron Irradiated Accident Tolerant Nuclear Fuel Cladding Silicon Carbide & Radiation Detector Deadtime.
- 2015-2017** M.Sc. in Nuclear Engineering - Missouri University of Science and Technology, MO, USA
- 2007-2011** M.Sc. in Biomedical Engineering - RWTH Aachen University, Germany
- 2003-2007** BS in Environmental Science - California State University, Fresno, USA.
Joint degree with University of California-Riverside, Engineering Emphasis;
Minor in Philosophy Emphasis on Logic and Ethics

Employment History

- Jan 2013 - Present** - Kuwait Institute for Scientific Research, Shuwaikh, Kuwait
Associate Research Scientist
- Secondary Chief Scientific Investigator in a funded Coordinated Research Project between KISR & IAEA titled "Risk associated with construction of SMR cogeneration of electricity and desalination in Kuwait - Stakeholder's perception." (2023 - present)
 - Chief Scientific Investigator in a funded Coordinated Research Project between KISR, Missouri University of Science and Technology (MS&T) & IAEA titled "Machine Learning (ML) & Artificial Intelligence (AI)-based Framework Development for Nuclear-Renewable Hybrid Energy Systems" (2022 - present).
 - Main Scientific Staff in a Coordinated Research Project between KISR & IAEA titled "Assessment of the Feasibility of Nuclear Small Modular Reactors (SMRs) in the Power Generation Portfolio in Kuwait" (2021 - present).
 - Participating in a KISR Project. Task Leader for the assessment of body composition of 50 healthy adults using BIA and Bod Pod (2022 - present).
 - Measured body composition of healthy adults using Bod Pod, Pea Pod, DEXA, BIA.
 - Analyzed DNA fragments using Gel electrophoresis DNA analysis technique for the Biotechnology Program.
 - Worked on Fabrication and Characterization of Cu^{50} (Zr^{50} -xNi_x) 50 Nanocrystalline Coating by Cold Spray Technique for Potential Antibiofilm Application with the Nanotechnology Program.
 - Former Lab Supervisor of body composition analysis laboratory.

May 2018 - Rhode Island Nuclear Science Center, Narragansett, RI, USA.

Present *Visiting Research Scholar*

- Reactor Operator Trainee: 100 hours practical experience of reactor operation of the 2 Mega-Watt (MW), light water cooled, pool type reactor at the atomic energy commission (Rhode Island Nuclear Science Center).
- Designed neutron and gamma shielding blocks using Boron Carbide powder to be used shield the experimental designated area by the neutron beam port.
- Conducted weekly, monthly, quarterly surveys using Geiger-Mueller counter at the Nuclear Science Center facility.
- Helped with visually inspecting four fuel plates for any damage by taking the fuel plates out of the nuclear reactor core and transferred to the low power side of the pool for inspection. The test is performed annually per NRC regulation.
- Used Neutron Activation Analysis (NAA) to test Silicon Carbide (SiC) samples for any impurities by using gamma spectroscopy (HPGE detection system).
- Determined an annual cold-clean critical rod heights measurements.
- Performed an annual control rod worth measurements on the blade fuel pool-type reactor (reactivity measurement).
- Investigated the oxidation behavior and radiation effects on the accident tolerant fuel cladding— Silicon Carbide samples (SiC)— which were subjected to a pure steam environment under different varying temperatures.

Dec 2009 - Cardiology department at RWTH University klinikum, Germany

Jul 2011 *Research Assistant*

- Identified and analyzed patients with severe aortic stenosis who were/were not considered suitable candidates for surgery.
- Followed up with patients.
- Compared the mortality rates of patients treated either by Transcatheter aortic valve implantation (TAVI) or medical therapy.
- Analyzed patients' characteristics for predictors of mortality rate for patients treated by TAVI.

Apr 2008 - Cardiology department at RWTH University klinikum, Germany

Jan 2009 *Research Assistant*

- Analyzed patients who have/have not went under surgery, and/or angioplasty.
- Compared and contrasted patients who had only an angiography, but angioplasty negative.
- Processed, reconstructed and evaluated Single-Photon Emission Computed Tomography (SPECT) images.
- Evaluated and analyzed the angioplasty of some selected patients by QCA.
- Followed up with patients and conducted clinical analysis.

Jan 2005 - Bullard High School

Jan 2006 *Coach Assistant of Track and Field*

- Coached the men's team of track and field middle and long distances: 800 Meters, 1500 Meters, 1 Mile, and 5000 Meters.

Peer- Reviewed Publications

1. **B. Almutairi**, S. Jaradat, D. Kumar, A. Alajo, S. Usman, S.B. Alam. "Weight Loss and Burst Testing Investigations of Sintered Silicon Carbide Under Oxidizing Environments for Next Generation Accident Tolerant Fuels for SMR Applications." accepted in *Materials Today Communications*, Volume 30, March 2022.
2. **B. Almutairi**, S.B. Alam, C. S. Goodwin and S. Usman. "Simultaneous experimental evaluation of pulse shape and deadtime phenomenon of GM detector." *Nature Scientific Reports*, Volume 11, February 2021.
3. S.B. Alam, **B. Almutairi**, D. Kumar, C. S. Goodwin and G.T. Parks. "Neutronic Investigation of Alternative & Composite Burnable Poisons for the Soluble-Boron-Free And Long Life Civil Marine Small Modular Reactor Cores." *Nature Scientific Reports*, Volume 9, December 2019.
4. **B. Almutairi**, S.B. Alam, C. S. Goodwin, S. Usman and T. Akyurek. "Experimental Evaluation of the Deadtime Phenomenon for GM Detector: Deadtime Dependence on Operating Voltages." *Nature Scientific Reports*, Volume 10, November 2020.
5. S.B. Alam, **B. Almutairi**, D. Kumar, T. Ridwan, C. S. Goodwin and G.T. Parks. "Lattice Benchmarking of Deterministic, Monte Carlo and Hybrid Monte Carlo Reactor Physics Codes For the Soluble-Boron-Free SMR Cores." *Nuclear Engineering and Design*, Volume 356, January 2020.
6. S.B. Alam, **B. Almutairi**, D. Kumar, S.H. Hossain, S.Jaradat, K. Atkinson, C.S. Goodwin and G.T. Parks. "Neutronic Feasibility of Soluble-Boron-Free Civil Marine SMR Core Using Mixed D2O + H2O Coolant." *Nuclear Engineering and Design*, Vol 359, April 2020.
7. S.B. Alam, **B. Almutairi**, D. Kumar, P. Karmokar, C.S. Goodwin, and G.T. Parks. "Small Modular Reactor Core Design for Civil Nuclear Marine Propulsion Using Micro-Heterogeneous Duplex Fuel. Part I: Assembly-Level Analysis." *Nuclear Engineering and Design*, Volume 347, pp. 157-175, July 2019.
8. S.B. Alam, T. Ridwan, **B. Almutairi**, D. Kumar, C.S. Goodwin, and G.T. Parks. "Small Modular Reactor Core Design for Civil Nuclear Marine Propulsion Using Micro-Heterogeneous Duplex Fuel. Part II: Whole-Core Analysis." *Nuclear Engineering and Design*, Volume 347, pp. 176-191, July 2019.
9. Stress/rest myocardial perfusion scintigraphy in patients without significant coronary artery disease. Adamu U, Knollmann D, **Bader Almutairi**, Alrawashdeh W, Deserno V, Vogt F, Kleinhans E, Schäfer WM, Hoffmann R. *J Nucl Cardiol*. 2010 Jan-Feb;17 (1):38-44. Epub 2009 Aug 25. PMID: 19705212.
10. Results of Interventional Treatment of Stress Positive Coronary Artery Disease. Adamu U, Knollmann D, **Bader Almutairi**, Alrawashdeh W, Deserno V, Kleinhans E, Schäfer WM, Hoffmann R. *American Journal of Cardiology* Volume 105, Issue 11, Pages 1535-1539, 1 Jun 2010.
11. Two-Year Mortality after Transcatheter Aortic Valve Implantation versus Medical Therapy for High-Surgical Risk or Inoperable Aortic Stenosis Patients. Rainer Hoffmann, **Bader Almutairi**, Ralf Herpertz, Sara Lotfipour, Robert Stöhr, Omer Aktug, Kathrin Brehmer, Emilia Stegemann, Rüdiger Autschbach, Nikolaus Marx, Guido Dohmen. *J Heart Valve Dis*. 2013 Jan;22 (1):71-8.
12. S.B. Alam, **B. Almutairi**, A. Foutch, B. Kelly, B. Bloss and D. Kumar. "Conceptual Design of High Power Density SMR Cores: Understanding The Underlying Reactor Physics Phenomena." to be submitted in *Nature Communications*, January 2022.
1. S.B. Alam, **Almutairi, B.**, D. Kumar and C. S. Goodwin. "Uncertainty Quantification of SMR Core Linear Power Using Polynomial Chaos Method." Transaction of the American Nuclear Society, Vol 120, pp. 871-874, June 2019.
2. S.B. Alam, **Almutairi, B.**, D. Kumar and C. S. Goodwin. "Uncertainty Quantification on Core Input Parameter for SFR Core Using Polynomial Chaos." Transaction of the American Nuclear Society, Vol 120, pp. 1-12, June 2019.
3. **Almutairi, B.**, S.B. Alam, D. Kumar and C. S. Goodwin. "Reactor Physics Analysis of Thorium-Based Fuel for Long-Life SMR Cores Using Seed-Blanket Fuel Concept." Transaction of the American Nuclear Society, Vol 120, pp. 875- 878, June 2019.

4. **Almutairi, B.**, S.B. Alam, D. Kumar and C. S. Goodwin. "3D SPN Transport and Diffusion Approaches for the Sodium-Cooled Fast Reactor Core Using Deterministic Method." Transaction of the American Nuclear Society, Vol 120, pp. 883-886, June 2019.
5. **Almutairi, B.**, S.B. Alam, T. Akyurek, C.S. Goodwin, A. Olson and S. Usman. "Pulse Shape Dependence on Applied Voltage of Geiger-Mueller Detector." International Conference on Sensors Engineering and Electronics Instrumentation Advances, Canary Islands (Tenerife), Spain, 25-27 September 2019.
6. Alam, S.B., **Almutairi, B.**, Kumar, D., Goodwin, C.S., Alameri, S.A., 2018b. Convergence studies using method of characteristics solver for the Reduced-Moderation Water Reactor model, in: Proc. 2018 Pacific Basin Nuclear Conference (PBNC 2018), San Francisco, CA, USA. pp. 119–128.
7. Alam, S.B., **Almutairi, B.**, Kumar, D., Goodwin, C.S., Alameri, S.A., 2018a. 3D modeling of Reduced-Moderation Water Reactor lattice for P0 and P1 scattering approximations using deterministic and monte carlo codes, in: Proc. 2018 Pacific Basin Nuclear Conference (PBNC 2018), San Francisco, CA, USA. pp. 285–294.
8. **Almutairi, B.**, Alam, S.B., Goodwin, C.S., Usman, S., 2018. Benchmarking calculation of a soluble-boron-free SMR lattice model using deterministic, hybrid monte carlo and monte carlo codes, in: Proc. 2018 Pacific Basin Nuclear Conference (PBNC 2018), San Francisco, CA, USA. pp. 136–145.
9. Syed Bahauddin Alam, Geoff T. Parks, **Almutairi, B.**, Cameron S. Goodwin. High power density reactor core design for civil nuclear marine propulsion cores. Part II: Whole-core analysis. PHYSOR Apr.,22-26, 2018, Cancun, Mexico.
10. Syed Bahauddin Alam, Geoff T. Parks, **Almutairi, B.**, Cameron S. Goodwin. Design of high power density civil nuclear marine propulsion cores. Part I: Assembly-level analysis. PHYSOR Apr., 22-26, 2018, Cancun, Mexico.
11. Syed Bahauddin Alam, Geoff T. Parks, **Almutairi, B.**, Cameron S. Goodwin. Neutronic assessment of accident-tolerant cladding concepts for civil nuclear marine propulsion cores. Part II: Rim effect & reactivity feedback analysis. PHYSOR Apr. 22-26, 2018, Cancun, Mexico.
12. Syed Bahauddin Alam, Geoff T. Parks, **Almutairi, B.**, Cameron S. Goodwin. Neutronic assessment of accident-tolerant cladding concepts for civil nuclear marine propulsion cores. Part I: Reactivity & spectral hardening. PHYSOR Apr. 22-26, 2018, Cancun, Mexico.
13. S. Usman, **Almutairi, B.**, T. Akyurek. A New Phenomenological Model for Geiger-Müller Deadtime. ANS Winter Meeting, Washington, USA. Oct. 2017.

Training Courses and Workshops

1. Sampling : Design and Analysis, January 2023.
2. Innovative Approach to Patent Protection & Commercial Transfer, January 2023.
3. Introduction to Machine Learning with Neural Networks, January 2022.
4. Successful Preparation of Scientific Research Proposal, October 2021.
5. Spectroscopy And NMR Theory & Application workshop organized by Kuwait Institute for Scientific Research (KISR), Kuwait, February 2021.
6. **Nuclear Research Reactor Operator (RO)** intensive training (100 hours of reactor operation experience that includes reactor start up, power manipulations, reactor shutdown) at the Rhode Island Nuclear Science Center, January 2019 to June 2020.
7. MeV summer school at Oak Ridge National Laboratory, Knoxville, Tennessee, USA, July 2019.
8. Nuclear Corrosion Summer School (NuCoSS-19) at the Slovenian National Building and Civil Engineering Institute (ZAG), Slovenia, July 2019.
9. MeV summer school at Argonne National Laboratory, Lemont, IL, USA, July 16-26 of 2018.

10. Radiation Safety officer (RSO) training for the Rhode Island Nuclear Science Center, May 2018.
11. Intensive Research and Professional Development Bootcamp, Missouri University System, MO, USA, March 20-21, 2018.
12. Nuclear Nonproliferation Summer Fellowship at the Nuclear Non-Proliferation Education and Research Center, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea, Jul. 2017 – Aug. 2017.
13. Graduate Student Leadership Development Program, Missouri University System, MO, USA, 2017.
14. University of California- San Francisco radiology annual review conference, March 2014.
15. Applications of Nuclear Research Reactors in Industry, Medicine and Research, Faculty of Nuclear Sciences, Czech Technical University in Prague, Czech Republic, June 9-18, 2014.
16. DXA Body Composition Analysis, X-ray bone densitometry, Florida and California, 17/02/14 – 07/03/14.
17. Development of nuclear infrastructure workshop in the state of Kuwait, May 2014.
18. DXA for bone mineral density and body composition assessment, 01/08/13 - 30/09/13.
19. Stable isotope techniques to access body composition and total energy expenditure to monitor and evaluate life style interventions compact childhood obesity, Kuwait, 11/11/13 – 13/11/13.
20. Gel electrophoresis DNA analysis, Copenhagen, Denmark, 28/06/2014 – 28/07/2014.

Honors and Awards

1. Alpha Nu Sigma National Honor Society, 2019.
2. Tau Beta Pi, The Engineering Honor Society, 2018.
3. Travel Grant Award to present a paper at the Pacific Basin Nuclear Conference (San Francisco, Sept. 30-Oct 4, 2018) from the Department of Nuclear Engineering at Missouri University of Science & Technology.
4. Graduate Research Fellow Award for the summer school at Oak Ridge National Laboratory, Knoxville, Tennessee, USA, July 2019.
5. Graduate Research Fellow Award for the summer school at Argonne National Laboratory, Lemont, IL, USA, Jul 16-26 of 2018.
6. Nuclear Nonproliferation Education & Research Center (NEREC) Fellowship Award for Nuclear Non-Proliferation Education and Research Center, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea, Jul. 2017 – Aug. 2017 ([Awarded out of 30 Graduate Fellows from 16 countries](#)).
7. Scholarship Award to earn a Ph.D. degree in Nuclear Engineering from Kuwait Institute for Scientific Research, Kuwait, Aug 2017- present ([Awarded to 6 researchers from KISR](#)).
8. Scholarship Award to earn a Master's degree in Nuclear Engineering from Kuwait Institute for Scientific Research, Kuwait, Aug 2015- 2017 ([Awarded to 6 researchers from KISR](#)).
9. RWTH Aachen University Ambassador Program 2012-present ([Awarded to 1 Alumni from each country](#)).
10. University of California, Riverside, Dean's honor list, 2007.
11. Scholarship Award to earn a Bachelor's degree in the USA. Awarded from Ministry of Higher Education, Kuwait, 2002.
12. Hesham ben Aas High School, graduated with highest GPA in class of 1996.

Languages

- **English:** Fully fluent, written and spoken.
- **German:** Intermediate knowledge, written and spoken.
- **Arabic:** Native speaker.

Memberships, Associations, and Professional Affiliations

1. Kuwait Society for Science, Technology and Innovation, 2021 - Present.
2. Department of Mechanical Engineering of the University of Rhode Island affiliation 2018- 2019.
3. Sponsored Student Advisory Committee (SSAC) representative of Kuwaiti students at Missouri University of Science and Technology, Sept 2017- Sept 2018.
4. Vice-President for the Council of Graduate Students (CGS) at Missouri University of Science and Technology, Aug 2017- Sept 2018 .
5. American Physics Society, 2018- present.
6. American Society of Naval Engineers, 2018- present.
7. Tau Beta Pi Engineering Honor Society, 2018- present.
8. American Nuclear Society member, 2016 - present.
9. Nuclear Engineering Department Representative for the Council of Graduate Students at Missouri University of Science and Technology, Mar 2016 – 2019.
10. Director of Scientific Committee for Kuwaiti graduate students under the National Union of Kuwaiti Students in USA, Sept 2016- 2019.
11. RWTH Aachen Alumni Association 2011- present.
12. Fresno State Alumni Association 2007- present.

Additional Skills

- Able to work in teams and/or leadership positions.
- Able to adapt to new methodologies and learn new techniques and analyses.
- Proficient with Microsoft Excel, Word, Powerpoint, and Latex.
- Data Analysis using MATLAB, Python, OriginLab Pro .
- Programming Languages: MATLAB, FORTRAN 2008, Python.
- Work diligently until end of every project.
- Hardware: PCs, Macintosh, Linux.

Interests

- Reading science based books
- Gaming using PlayStation 5 or xbox
- Watching Track and Field, and soccer events

Referees

Name	Dr. Cameron Goodwin	Name	Dr. Syed Alam
Organization	Rhode Island Nuclear Science Center.	Organization	Missouri University of Science and Technology
Position	Director	Position	Assistant Professor
Contact	cgoodwin@rinsc.ri.gov	Contact	sbagqm@umsystem.edu