Dr. Amani Fawaz Kraishan

Associate Professor of Physics | Nuclear and Radiation Physics

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Google Scholar: https://scholar.google.com/citations?user=-MbVjtcAAAAJ&hl=en
ResearchGate: https://www.researchgate.net/profile/Amani-Kraishan-2
Scopus: https://www.scopus.com/authid/detail.uri?authorId=56094557700
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ACADEMIC PROFILE

Associate Professor of Physics specializing in nuclear and radiation physics, with extensive experience in university teaching, student mentorship, research supervision, online and hybrid instruction, academic service, and international collaboration. Research interests span experimental nuclear and high-energy physics through the STAR Collaboration, radiation physics, environmental radioactivity, radiation effects in materials, optical materials, DNA/radiation studies, detector-related physics, and physics education research. Demonstrated record of peer-reviewed publications, high citation impact, international collaboration, and service as a reviewer for peer-reviewed scientific journals.

EDUCATION

Ph.D. in Physics | Temple University, College of Science and Technology, Philadelphia, PA, USA, 2018

- Dissertation: Measurement of Longitudinal Single-Spin Asymmetry for W± Boson Production in Polarized Proton-Proton Collisions at STAR at Forward Rapidity.

M.Sc. in Physics | University of Delaware, College of Arts and Sciences, Newark, DE, USA, 2012

- Thesis: The Role of Cooper Pairing in Atomic Nuclei.

B.Sc. in Physics | Al-Hussein Bin Talal University, College of Science, Ma'an, Jordan, 2006

- Graduated with highest honors.

ACADEMIC APPOINTMENTS

Associate Professor of Physics | Department of Physics, Al-Hussein Bin Talal University, Jordan, April 2025-Present

- Teach undergraduate physics courses, mentor students, contribute to curriculum development, and lead research activities in nuclear and radiation physics.
- Promoted in recognition of continued excellence in research, teaching, and academic service.

Assistant Professor of Physics | Department of Physics, Al-Hussein Bin Talal University, Jordan, September 2018-April 2025

- Delivered core and advanced physics courses and laboratories while maintaining an active peer-reviewed publication record.
- Developed collaborations in radiation physics, detector-related research, and interdisciplinary applications of nuclear physics.

Research Assistant | Department of Physics, Temple University, Philadelphia, USA, June 2015-June 2018

- Contributed to STAR Collaboration research on longitudinal single-spin asymmetries for weak boson production in polarized proton-proton collisions.
- Supported experimental analysis, detector-related work, and dissemination through journal publications and conference presentations.

Teaching Assistant | Department of Physics, Temple University, Philadelphia, USA, August 2013-May 2015

• Led and supported undergraduate physics laboratory instruction, grading, and student problem-solving sessions.

Research and Teaching Assistant | Department of Physics, Al-Hussein Bin Talal University, Jordan, June 2006-June 2009

• Supported laboratory instruction, tutorials, grading, and early research activities in physics.

RESEARCH AREAS

• Nuclear physics and hadron structure
• Radiation physics and radiation effects
• Environmental radioactivity and radiation protection
• Radiation shielding and radiation-related material studies
• Detector development and experimental nuclear/high-energy physics instrumentation
• Structural and optical properties of irradiated materials
• Physics education research
• AI-supported learning and international collaborative learning

RESEARCH OUTPUT AND IMPACT

• Author/co-author of more than 90 scholarly publications indexed in Google Scholar across nuclear physics, radiation physics, high-energy physics, environmental radioactivity, optical materials, radiation effects, DNA/radiation studies, and physics education research.
• Research impact includes 11,170 citations, h-index 56, and i10-index 88 according to Google Scholar, as of 03 May 2026.
• Research contributions include high-impact STAR Collaboration publications and independent/collaborative work in radiation physics, environmental radioactivity, radiation shielding, optical materials, DNA stability under gamma radiation, and physics education.
• Recent publications appear in Applied Radiation and Isotopes, Radiation Physics and Chemistry, Annals of Nuclear Energy, Nuclear Engineering and Technology, Chinese Journal of Physics, Annals of Physics, and Computers and Education: Artificial Intelligence.
• Strong record of international collaboration with researchers and institutions in Jordan, the United States, and other countries.
• Active contributor to scholarly peer review, with 16 completed manuscript reviews for 5 international journals between January 2024 and May 2026.

SELECTED PUBLICATIONS

• Kraishan, A., Refaat, A. M., Almhaini, J. A., Bazuhair, A. S., Al-Qahtani, S. M., Althomali, M. A., Al-Ameryeen, H., Alomari, A. H., and Ajlouni, A.-W. "Resilient STR loci under gamma radiation: A preliminary study on DNA stability in buccal swabs." Applied Radiation and Isotopes (2025): 111762.
• Agyare, B., Asare, J., Kraishan, A., Nkrumah, I., and Adjekum, D. K. "A Cross-National Assessment of Artificial Intelligence (AI) Chatbot User Perceptions in Collegiate Physics Education." Computers and Education: Artificial Intelligence (2025): 100365.
• Saleh, B. A. A., Kraishan, A., Elimat, Z. M., Abu Karaki, I., Alzubi, R. I., and Juwhari, H. K. "Effect of gamma radiation on the optical properties of PMMA composites with varying Al concentrations." Radiation Physics and Chemistry 226 (2025): 112342.
• Baloch, M. A., Younis, H., Abu Shayeb, M., Alam, K., Younis, H., Azmat, K., and Kraishan, A. "Concentration level of radionuclides in road dust in the urban atmosphere of two cities of Pakistan." Annals of Nuclear Energy 206 (2024): 110654.
• Kraishan, A., Abu Shayeb, M., Belmabrouk, H., Qwasmeh, A. A. H., and Baloch, M. A. "Assessment of natural radioactivity in soil and olive mill pomace utilizing NaI(Tl) gamma-ray spectrometry and low

background alpha/beta counting system." Nuclear Engineering and Technology 56, no. 5 (2024): 1925-1931.

- Kraishan, A. F., Abu Shayeb, M., Belmabrouk, H., and Hamad, B. "Transfer factors for natural radioactivity into olive mill pomace." Applied Radiation and Isotopes 204 (2024): 111136.
- Al-Badawi, A., and Kraishan, A. "Dirac perturbations of Hayward black hole with quintessence: Quasinormal modes and greybody factor." Chinese Journal of Physics 87 (2024): 59-69.
- Al-Badawi, A., and Kraishan, A. "Fermionic greybody factors and quasinormal modes of black holes in Kalb-Ramond gravity." Annals of Physics 458 (2023): 169467.
- Adam, J., Adamczyk, L., Adams, J. R., Adkins, J. K., Agakishiev, G., Aggarwal, M. M., Ahammed, Z., et al. "Measurement of the longitudinal spin asymmetries for weak boson production in proton-proton collisions at sqrt(s)=510 GeV." Physical Review D 99, no. 5 (2019): 051102. (STAR Collaboration)

TEACHING EXPERIENCE

Al-Hussein Bin Talal University

- General Physics I and II
- General Physics Laboratory I and II
- Mathematical Physics I and II
- Classical Physics I and II
- Vibrations and Waves
- Thermodynamics
- Optics I and II
- Quantum Mechanics I and II
- Intermediate Laboratory
- Introduction to Astrophysics
- Elementary Particle Physics

Temple University

- Introduction to General Physics I Laboratory
- Introduction to General Physics II Laboratory
- Elementary Classical Physics II Laboratory

ONLINE, HYBRID, AND DIGITAL TEACHING

- Experienced in online and hybrid teaching since 2020 using Microsoft Teams, Zoom, Microsoft 365, OneNote, SharePoint, Microsoft Forms, and the university e-learning platform.
- Design and grade quizzes, assignments, and exams through digital platforms while supporting academic integrity, accessibility, and student engagement.
- Use digital tools to organize course materials, provide feedback, and support student-centered learning.
- Continue to teach at least one course online each semester and regularly update course materials for flexible delivery.
- Support students and colleagues in improving digital learning skills and comfort with online teaching platforms.

STUDENT MENTORING, OUTREACH, AND INTERNATIONAL COLLABORATION

- Faculty COIL Collaborative Certificate, Stockton University Office of Global Engagement, USA, 2026; completed COIL training and developed/implemented a Collaborative Online International Learning unit.

- Guided students in ethical collaboration, intercultural communication, teamwork, and global learning through high-impact international teaching practices.
- Collaborated on cross-national physics education research examining AI chatbot user perceptions in collegiate physics education.
- Participated in the Physics in Culture COIL project, connecting physics concepts with cultural heritage, communication, and interdisciplinary learning.
- Organized/participated in observing the partial solar eclipse in front of the College of Science building, Al-Hussein Bin Talal University, 25 October 2022.
- Participated in a scientific trip with physics students to the SESAME Synchrotron Center, 18 April 2019.
- Delivered physics lectures to school students as part of outreach and public science-engagement activities.

ACADEMIC COMMITTEES AND INSTITUTIONAL SERVICE

Al-Hussein Bin Talal University

- Member, Department Timetable and Study Plans Committee.
- Member, Department Quality Assurance Committee.
- Member, Scientific Research Committee.
- Member, Faculty of Science Council.
- Member, Master's Thesis Defense Committee, Department of Physics.

PROFESSIONAL SERVICE AND PEER REVIEW

- Peer Reviewer, International Scientific Journals, 2023-Present.
- Review manuscripts for international peer-reviewed journals in radiation physics, nuclear science, environmental radioactivity, radiation protection, materials/radiation effects, and applied physics.
- Completed 16 verified manuscript reviews for 5 international journals between January 2024 and May 2026.
- Reviewed for: Applied Radiation and Isotopes; Atmospheric Pollution Research; Journal of Radiation Research and Applied Sciences; Physics Open; Radiation Physics and Chemistry.

HONORS, AWARDS, SCHOLARSHIPS, AND GRANTS

- Recognition Award, Battelle Memorial Institute and Stony Brook University, USA, 2018. Awarded for research contributions and collaboration during Ph.D. studies.
- Outstanding Teaching Assistant Award in Physics, Temple University, USA, 2016. Recognized for excellence in undergraduate physics instruction and student support.
- Graduate Fellowship for M.Sc. and Ph.D. Research, Al-Hussein Bin Talal University, Jordan, 2009-2014. Competitive funding to support graduate studies and research abroad.
- Highest Honor B.Sc. Student Award, Al-Hussein Bin Talal University, Jordan, 2006. Graduated top of class with highest academic distinction.
- Undergraduate Fellowship, Al-Hussein Bin Talal University, Jordan, 2003-2006. Full academic scholarship based on academic excellence.

CONFERENCE PRESENTATIONS AND PROCEEDINGS

- "Measurement of Longitudinal Single-Spin Asymmetry for W Boson Production in Polarized Proton-Proton Collisions at STAR," Poster, RHIC/AGS Users Meeting, Brookhaven National Laboratory, NY, June 2018.
- "Measurement of the Longitudinal Single-Spin Asymmetry for W Boson Production in Polarized Proton-Proton Collisions at STAR," APS Division of Nuclear Physics Fall Meeting, Pittsburgh, PA, October 2017.

- "Probing Helicity and Unpolarized Quark/Anti-quark Distribution Function Using W Boson Production at RHIC," RHIC/AGS Users Meeting, Brookhaven National Laboratory, NY, June 2017.
- "Measurement of Longitudinal Single-Spin Asymmetry for W Boson Production at Forward Pseudorapidity in Polarized Proton-Proton Collisions at STAR," Poster, RHIC/AGS Users Meeting, Brookhaven National Laboratory, NY, June 2017.
- "Measurement of Longitudinal Single-Spin Asymmetry for W Boson Production at STAR at Forward Rapidity," APS April Meeting, Washington, DC, January 2017.
- "The Forward GEM Tracker (FGT) of STAR at RHIC," Poster, RHIC/AGS Users Meeting, Brookhaven National Laboratory, NY, June 2016.
- "Test of Commercially Manufactured Large Single Mask GEM Foils," APS Division of Nuclear Physics Fall Meeting, Santa Fe, NM, October 2015.

LICENSES AND CERTIFICATIONS

- Faculty COIL Collaborative Certificate, Stockton University Office of Global Engagement, USA, 2026.
- ICDL Certificate, ICDL Foundation / Specto, Jordan, 02 September 2023. Completed modules in Using Database / MS Access 2016, Online Collaboration, Computer and Online Essentials, and Application Essentials.
- RCR for Physical Sciences, CITI Program, September 2023. Credential ID: 58648413. Valid through September 2025.
- Social and Behavioral Research - Basic/Refresher, CITI Program, September 2023. Credential ID: 58648791. Valid through September 2026.
- Learning Microsoft 365 Copilot, LinkedIn Learning, July 2024.
- Communicating with Confidence, LinkedIn Learning, August 2024.
- Building Resilience, LinkedIn Learning, July 2024.
- Communicating with Emotional Intelligence, LinkedIn Learning, July 2024.
- Communication Foundations, LinkedIn Learning, July 2024.
- Effective Listening, LinkedIn Learning, July 2024.
- Productive Leadership, LinkedIn Learning, July 2024.
- Speaking Confidently and Effectively, LinkedIn Learning, July 2024.
- Writing Articles, LinkedIn Learning, July 2024.

TECHNICAL AND PROFESSIONAL SKILLS

- **Languages:** Arabic: native; English: excellent.
- **Programming and Research Tools:** C/C++, Bash scripts, ROOT, Mathematica, LaTeX.
- **Operating Systems and Platforms:** Linux, Microsoft 365, online learning platforms.
- **Research Competencies:** Detector-related measurements, GEM foil testing, clean-room procedures, radiation measurements, and data analysis.
- **Professional Skills:** Teaching, mentoring, academic writing, peer review, teamwork, problem-solving, time management, attention to detail, and academic leadership.

REFERENCES

Prof. Theodore Burkhardt
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