

EDUCATION

- ⊗ **B.S. in Physics**, King Fahd University of Petroleum and Minerals (KFUPM) Expected 2023/09

PUBLICATIONS

- ⊗ **Ibraheem F. Al-Yousef**, Moayad Ekhwan, H. Bahlouli, and A. D. Alhaidari, “Spectral Problem of the Hamiltonian in Quantum Mechanics without Reference to a Potential Function” *Axioms* **2023**, 12, 334 doi:[10.3390/axioms12040334](https://doi.org/10.3390/axioms12040334)

RESEARCH EXPERIENCE

- ⊗ **Condensed Matter Theory** Solving prototypical quantum spin Hamiltonians via Jordan-Wigner fermions, with a proposal of utilizing Jordan-Wigner fermions to exactly solve an extension of the Kitaev honeycomb model that includes second nearest neighbor interactions. [[Research Proposal](#)]
KFUPM, Aug 2022 - Jan 2023
- ⊗ **Mathematical Physics** Solving undergraduate-level problems in a new formulation of quantum mechanics without a reference to a potential function, by utilizing orthogonal energy polynomials. [[Published](#)]
KFUPM, Feb 2022 - Mar 2023
- ⊗ **Thin Films** Fabrication and optical characterization of Titanium-doped Indium-Tin-Oxide thin films for UV protection applications, as part of the undergraduate student research grant UXPLORE. [[Final Report](#)]
IRC-REPS KFUPM, Jan 2023 - Jun 2023

COMPUTATIONAL SKILLS

- ⊗ **Mathematica** Expert in both symbolic and numerical calculations. [[Samples](#)]
- ⊗ **Python** Competent for computational physics and chemistry usages. [[Samples](#)]
- ⊗ **L^AT_EX** Proficient in L^AT_EX for articles and presentations. [[Samples](#)]

ADVANCED UNDERGRADUATE COURSES

- ⊗ **Undergraduate Research** Second quantization; Jordan-Wigner transformation; Phase diagrams.
- ⊗ **Nuclear and Particle Physics** Nuclear models; Radioactive decays and models; Nuclear reactions.
- ⊗ **Physics of Semiconductor Devices** Energy band diagrams; LEDs; MOSFET and JFET; Solar-cells.
- ⊗ **Computational Physics** Monte Carlo; Modelling physical systems; Limitations of numerical methods.
- ⊗ **Computational Chemistry** Hartree-Fock; Molecular Dynamics; Monte Carlo simulations; DFT.

VOLUNTEERING

- ⊗ **President of The Physics Club** Guiding the physics club towards organizing engaging guest lectures, interactive activities, and competitions to enhance members' knowledge and passion for physics.
KFUPM, Aug 2022 - Present
- ⊗ **Committee Member** Selected to be serving on the Islamic Affairs Committee at KFUPM.
KFUPM, Oct 2022 - Present

WORK EXPERIENCE

- ⊗ **Medical Physicist** Trained in medical imaging and nuclear medicine sections, performing quality control tasks.
King Fahad Specialist Hospital in Dammam, Jun 2022 - Aug 2022
- ⊗ **Physics Grader** Worked as a part-time job grader for Freshman physics course, grading quizzes and homeworks.
KFUPM, Feb 2022 - Jun 2022

SHORT COURSES

‡ Principles of Project Management KFUPM, Jun 2023	‡ LabVIEW Programming KFUPM, Mar 2022
‡ Research Skills KFUPM, Apr 2023	‡ Data Analysis Using Python KFUPM, Oct 2021
‡ Business for Science and Engineering KFUPM, Feb 2023	‡ Business Skills Training KnowledgeHut upGrad, Jun 2020

SKILLS

⦿ Leadership	⊗ Teamwork	⊕ Presentation	⦿ Research
⦿ Competitiveness	⊗ Teaching	⊕ Critical Thinking	⦿ Problem Solving

REFERENCES

Available upon request.