جامعة الحدود الشمالية
NORTHERN BORDER UNIVERSITY

CURRICULUM VITAE

Name: Dr. Tarek Ibrahim Alanazi

Affiliation: Department of Physics, College of Science, Northern Border University, Arar 73222, Saudi Arabia

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Languages: Arabic and English.

EDUCATION

- **Doctor of Philosophy** | October 2017-September 2021 | The University of Sheffield | Sheffield, United Kingdom | Solid State Physics (Solar Energy).
- **Master of Science** | January 2015-December 2016 | The University of Akron | Akron, Ohio, United States | Physics.
- **Bachelor of Science** | August 2008-July 2011 | Northern Border University | Arar, Saudi Arabia | Physics.

ACADEMIC POSITIONS

- **Assistant Professor**, Northern Border University, September 2022– Present.
- **Lecturer**, Northern Border University, May 2019 – September 2022.
- **Teaching Assistant**, Northern Border University, August 2012 – May 2019.

EXPERIENCE

1. **Teaching**

- General Physics 1
- General Physics 3
- Mathematical Physics
- Undergraduate Project

2. Research Area

- Perovskite Solar Cells Efficiency and Stability
- Solar Cells Simulation Using TCAD (Silvaco), SCAPS-1D and SETFOS
- Photonic and microelectronic devices
- Energy Storage Devices
- Optical Conductivity

3. Positions

- Vice Dean of the Development and Community Partnership (August 2023 to Present).
- Head of Physics Department (July 2023 to November 2023).
- Secretary of the College of Science Council (August 2024 to Present)
- Director of the Program Accreditation Unit (September 2022 to August 2023).
- Member of the Program Accreditation Unit (June 2022 to September 2022).
- Program's Accreditation Consultant (February 2023 to January 2024).
- Head of the Committee for Creating an Applied Geology Program (October 2022 to September 2023).
- Member of the College of Science Council (July 2023 to Present).
- Head of the Department of Physics Council (July 2023 to November 2023).
- Member of the Department of Physics Council (July 2022 to Present).
- Head of the College of Science Alumni Committee (March 2023 to September 2023).
- Head of the Committee for Creating an Applied Geology Program (October 2022 to September 2023).
- Member of the Faculty Members Committee (Sep 2022 to Present).
- Head of the Quality Committee (August 2023 to Present).
- Member of the Advisory Committee in the College of Science (November 2023 to Present).
- Member of the Student Code of Conduct and Discipline Committee (February 2023 to Present).
- Head of the Quality Committee (July 2023 to Present).
- Member of the Faculty Members Committee (Sep 2022 to Present).

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PROFESSIONAL ACTIVITES

- **Reviewer:** Ain Shams Engineering Journal, Alexandria Engineering Journal, RSC advances, Journal of computer assisted learning.
- Academic quality practitioner.
- One of the highest published researchers at Northern Border University in journals classified within the Web of Science (WoS) for the year 2023.

PUBLICATIONS

1. Freestone, Benjamin G., Joel A. Smith, Giacomo Piana, Rachel C. Kilbride, Andrew J. Parnell, Luca Sortino, David M. Coles, Ball OB, Martsinovich N, Thompson CJ, **Tarek I. Alanazi**. "Low-dimensional emissive states in non-stoichiometric methylammonium lead halide perovskites." *Journal of Materials Chemistry A* 7, no. 18 (2019): 11104-11116.
2. Dharmadasa, I. M., Y. Rahaq, A. A. Ojo, and **Tarek I. Alanazi**. "Perovskite solar cells: a deep analysis using current–voltage and capacitance–voltage techniques." *Journal of materials science: Materials in electronics* 30 (2019): 1227-1235.
3. Game, Onkar S., Joel A. Smith, **Tarek I. Alanazi**, Michael Wong-Stringer, Vikas Kumar, Cornelia Rodenburg, Nick J. Terrill, and David G. Lidzey. "Solvent vapour annealing of methylammonium lead halide perovskite: what's the catch?." *Journal of Materials Chemistry A* 8, no. 21 (2020): 10943-10956.
4. **Tarek I. Alanazi**, Onkar S. Game, Joel A. Smith, Rachel C. Kilbride, Claire Greenland, Rahul Jayaprakash, Kyriacos Georgiou, Nicholas J. Terrill, and David G. Lidzey. "Potassium iodide reduces the stability of triple-cation perovskite solar cells." *RSC advances* 10, no. 66 (2020): 40341-40350.
5. Smith, Joel A., Onkar S. Game, James E. Bishop, Emma LK Spooner, Rachel C. Kilbride, Claire Greenland, Rahul Jayaprakash, **Tarek I. Alanazi**. "Rapid scalable processing of tin oxide transport layers for perovskite solar cells." *ACS Applied Energy Materials* 3, no. 6 (2020): 5552-5562.
6. Pérez, Gabriel E., Harikrishna Erothu, Paul D. Topham, Francesco Bastianini, **Tarek I. Alanazi**, Gabriel Bernardo, Andrew J. Parnell, Stephen M. King, and Alan DF Dunbar. "Improved Performance and Stability of Organic Solar Cells by the Incorporation of a Block Copolymer Interfacial Layer." *Advanced Materials Interfaces* 7, no. 18 (2020): 2000918.
7. O'Kane, Mary E., Joel A. Smith, **Tarek I. Alanazi**, Elena J. Cassella, Onkar Game, Sandra van Meurs, and David G. Lidzey. "Perovskites on Ice: An Additive-Free Approach to Increase the Shelf-Life of Triple-Cation Perovskite Precursor Solutions." *ChemSusChem* 14, no. 12 (2021): 2537-2546.
8. Thornber, Timothy, Onkar S. Game, Elena J. Cassella, Mary E. O'Kane, James E. Bishop, Thomas J. Routledge, **Tarek I. Alanazi** et al. "Nonplanar spray-coated perovskite solar cells." *ACS Applied Materials & Interfaces* 14, no. 33 (2022): 37587-37594.

9. **Tarek I. Alanazi**. "Current spray-coating approaches to manufacture perovskite solar cells." *Results in Physics* (2022): 106144.
10. Hesarian, Mir Saeid, Jafar Tavoosi, and **Tarek I. Alanazi**. "Model development of a hybrid battery–piezoelectric fiber system based on a new control method." *Polymers* 14, no. 24 (2022): 5428.
11. **Tarek I. Alanazi**. "Absorption of one-dimensional dielectric–metal photonic-crystal absorbers for terahertz range." *Ukrainian Journal of Physical Optics* 24, no. 1 (2023): 83-94.
12. **Tarek I. Alanazi**. "Design and Device Numerical Analysis of Lead-Free Cs2AgBiBr6 Double Perovskite Solar Cell." *Crystals* 13, no. 2 (2023): 267.
13. Guo, Peixi, N. Bharath Kumar, Yasser Elmasry, Abdulaziz Alanazi, **Tarek I. Alanazi**, Ammar Armghan, A. M. Algelany, and Makatar Wae-hayee. "CO2 hydrogenation for geothermal energy storage through synthetic natural gas production and byproduct of refrigeration and freshwater using solid oxide electrolyzer cell (SOEC) and methanation reactor; Techno-economic evaluation and multi-objective optimization." *Journal of CO2 Utilization* 69 (2023): 102395.
14. **Tarek I. Alanazi**, and Omer I. Eid. "Simulation of Triple-Cation Perovskite Solar Cells: Key Design Factors for Efficiency Promotion." *Energies* 16, no. 6 (2023): 2717.
15. Saif, Omar M., Abdelhalim Zekry, Ahmed Shaker, Mohammed Abouelatta, **Tarek I. Alanazi**, and Ahmed Saeed. "Design and Optimization of a Self-Protected Thin Film c-Si Solar Cell against Reverse Bias." *Materials* 16, no. 6 (2023): 2511.
16. **Tarek I. Alanazi**, and Mona El Sabbagh. "Proposal and Design of Flexible All-Polymer/CIGS Tandem Solar Cell." *Polymers* 15, no. 8 (2023): 1823.
17. **Tarek I. Alanazi**. "TCAD Device Simulation of All-Polymer Solar Cells for Indoor Applications: Potential for Tandem vs. Single Junction Cells." *Polymers* 15, no. 9 (2023): 2217.
18. Dai, Jie, Abdulkareem Abdulwahab, Haoran Wei, Abdulaziz Alanazi, Mohana Alanazi, **Tarek I. Alanazi**, Ammar Armghan, and Makatar Wae-hayee. "Multi-criteria sensitivity study and optimization of an electricity/cooling/hydrogen production scheme combined with SOFC-based sequential heat recovery: Sustainability and economic analyses." *Process Safety and Environmental Protection* 174 (2023): 169-187.
19. Alanazi, Abdulaziz, and **Tarek I. Alanazi**. "Multi-Objective Framework for Optimal Placement of Distributed Generations and Switches in Reconfigurable Distribution Networks: An Improved Particle Swarm Optimization Approach." *Sustainability* 15, no. 11 (2023): 9034.
20. **Tarek I. Alanazi**, Abdulaziz Alanazi, Ezzeddine Touti, Ahmed M. Agwa, Habib Kraiem, Mohana Alanazi, Abdulrahman M. Alanazi, and Mona El Sabbagh. "Proposal and Numerical Analysis of Organic/Sb2Se3 All-Thin-Film Tandem Solar Cell." *Polymers* 15, no. 11 (2023): 2578.
21. **Tarek I. Alanazi**, and Adel M. El Sayed. "Characterization of Mg–Pb–O systems, and MgPbO–thermoplastic blend: Nanocomposites for photonic and microelectronic devices." *Journal of Physics and Chemistry of Solids* 178 (2023): 111346.
22. Kraiem, Habib, Ezzeddine Touti, Abdulaziz Alanazi, Ahmed M. Agwa, **Tarek I. Alanazi**, Mohamed Jamli, and Lassaad Sbita. "Parameters Identification of Photovoltaic Cell and Module Models Using Modified Social Group Optimization Algorithm." *Sustainability* 15, no. 13 (2023): 10510.
23. **Tarek I. Alanazi**, and Adel M. El Sayed. "M3+/NaTiO3/PVA–chitosan nanocomposites (M= Ga, Ce, Nd or Er): novel solid polymer electrolytes for supercapacitors." *Physica Scripta* 98, no. 8 (2023): 085946.

24. Zein, Walid, **Tarek I. Alanazi**, Mostafa M. Salah, and Ahmed Saeed. "Concurrent Design of Alloy Compositions of CZTSSe and CdZnS Using SCAPS Simulation: Potential Routes to Overcoming VOC Deficit." *Energies* 16, no. 15 (2023): 5754.
25. Agwa, Ahmed M., **Tarek I. Alanazi**, Habib Kraiem, Ezzeddine Touti, Abdulaziz Alanazi, and Dhari K. Alanazi. "MPPT of PEM Fuel Cell Using PI-PD Controller Based on Golden Jackal Optimization Algorithm." *Biomimetics* 8, no. 5 (2023): 426.
26. **Tarek I. Alanazi**, Omer I. Eid, and Mohamed Okil. "Numerical study of flexible perovskite/Si tandem solar cell using TCAD simulation." *Optical and Quantum Electronics* 55, no. 13 (2023): 1-19.
27. El Sayed, Adel M., and **Tarek I. Alanaz**i. "Improving the structural, optical, and electrical properties of carboxymethyl cellulose/starch/selenium oxide nanocomposites for flexible electronic devices." *Scientific Reports* 14, no. 1 (2024): 3398.
28. Zein, Walid, **Tarek I. Alanazi,** Ahmed Saeed, Mostafa M. Salah, and Mohamed Mousa. "Proposal and Design of Organic/CIGS Tandem Solar Cell: Unveiling Optoelectronic Approaches for Enhanced Photovoltaic Performance." *Optik* (2024): 171719.
29. **Tarek I. Alanazi,** Walid Zein, Karim Azab, Ahmed Shaker, Mostafa M. Salah, and Dalia Selim. "Investigation of HTL-free perovskite solar cell under LED illumination: interplay between energy bandgap and absorber optimization." *Physica Scripta*99, no. 5 (2024): 055542.
30. Osman, M. M., Anwar Q. Alanazi, **Tarek I. Alanazi**, Masfer H. Alkahtani, A. M. El-naggar, A. A. Albassam, A. M. Aldhafiri et al. "Enhanced performance of perovskite solar cell via up-conversion YLiF4: Yb, Er nanoparticles." *Solar Energy Materials and Solar Cells* 273 (2024): 112955.
31. **Tarek I. Alanazi**, Ahmed Shaker, Michael Gad, and Mohamed Okil. "Optimization of all-polymer/Sb2Se3 tandem solar cells for enhanced efficiency: a comprehensive TCAD modeling approach." *Physica Scripta* 99, no. 6 (2024): 065516.
32. Touti, Ezzeddine, Mohamed Abdeen, Mahmoud A. El-Dabah, Habib Kraiem, Ahmed Agwa, Abdulaziz Alanazi, and **Tarek I. Alanazi**. "Sub-Synchronous Oscillation Mitigation for Series-Compensated DFIG-Based Wind Farm Using Resonant Controller." *IEEE Access* (2024).
33. **Tarek I. Alanazi**, Raghad A. Alenazi, and Adel M. El Sayed. "Tuning the band gap, optical, mechanical, and electrical features of a bio-blend by Cr2O3/V2O5 nanofillers for optoelectronics and energy applications." *Scientific Reports*14, no. 1 (2024): 12537.
34. **Tarek I. Alanazi**, and Adel M. El Sayed. "Reinforcing the structure, optical, and dielectric spectroscopies of poly (ethylene oxide)/poly (methyl methacrylate) thermoplastics by CoFe nanoparticles for optoelectronic device fabrication." *Optical and Quantum Electronics* 56, no. 7 (2024): 1224.
35. Alanazi, Abdulaziz, Shayan Tariq Jan, Zeeshan Khan, and **Tarek I. Alanazi**. "Analyzing the hetero-junction compatibility of Al2CdX4 chalcogenides as charge transport layers with lead-free perovskite layer." *Optical and Quantum Electronics* 56, no. 8 (2024): 1390.
36. **Tarek I. Alanazi.,** Ahmed Shaker, and Walid Zein. "Design and simulation of 2D Ruddlesden–Popper perovskite solar cells under LED illumination: Role of ETL and front contact band alignment." *Solar Energy Materials and Solar Cells* 274 (2024): 112992.