FARHAN ISHRAK

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EDUCATIONAL QUALIFICATION

Missouri State University January 2021- Present
Master's in Materials Science (Ongoing) Expected Graduation: Fall 2022
GPA: 3.97/4.00 (after 3rd semester)

Bangladesh University of Engineering and Technology (BUET) February 2015 - April 2019
Bachelor of Science in Materials and Metallurgical Engineering
Cumulative GPA: 3.65/4.00 (Junior/Senior GPA: 3.82/4.00)

RESEARCH EXPERIENCE

Missouri State University January 2021 - present
Graduate Thesis

- Synthesis and Characterization of Bi-Magnetic Core-Shell Nanoparticles
- Calculating Magnetic States of Cr-Doped NiO using DFT calculations

Bangladesh University of Engineering & Technology (BUET) January 2018 - April 2019
Undergraduate Thesis

- Utilization of Steel Slag to Produce Non-fired Bricks
- Measured the Compressive Strength, Water Absorption Capacity and Density-porosity of prepared Bricks

SKILLS

Synthesis Techniques:
- Thermal decomposition, evaporation and hydrothermal process for nanoparticle synthesis
- Metal, semiconductor, and insulator based thin film fabrication using Pulsed Laser Deposition (PLD) and Sputtering

Characterization: XRD, SEM, EDS, RAMAN, UV-Vis spectroscopy, Electrical measurement (I-V) using 4200 parameter analyser, Metallography

Data Analysis: TOPAS (Rietveld refinement), ImageJ (TEM, SEM), CasaXPS (XPS data analysis)

Mechanical Testing: UTS, Fatigue, Hardness, Impact, Bend Test

Computational Tools:
- DFT Calculation of electronic and magnetic properties (Quantum Espresso)
- MD simulation to investigate Bulk modulus, CTE, Stress-strain behavior (LAMMPS)
- Visualization tools: OVITO, VESTA
- Data mining: WEKA

General Software: OriginPro, Labview, Matlab, Solidworks, AutoCAD, Microsoft office

PRESENTATIONS

- 'Investigations of Mn-Co-NiO Based Hetero-structured Nanocrystals Synthesized Under Varying Metal Concentrations and Varying Core Particle Size.' Farhan Ishrak, Dr R A Mayanovic. 29th Annual Einhellig Graduate Interdisciplinary Forum, Missouri State University, May 7, 2022.
- 'Fabrication and Characterization of PLD grown In_2O_3/BTO bi-layered Thin Film FET.' Final project for Materials Synthesis & Characterization Course. May 16, 2022.
- 'UTILIZATION OF LOCALLY PRODUCED STEEL SLAG AS BUILDING MATERIAL'; International Conference on Mechanical, Industrial and Materials Engineering 2019, 18th December, 2019, RUET, Bangladesh.

PUBLICATIONS

- **Ishrak, Farhan**; Mayanovic, R.A.; Benamara, Mourad; 'Investigations of Size-Dependent Properties of Mn-Co-NiO Based Heterostructured Nanoparticles.' *(manuscript in progress)*
- Ria N.S., Momo A.M., **Ishrak F**., Gulshan F.; 'UTILIZATION OF LOCALLY PRODUCED STEEL SLAG AS BUILDING MATERIAL'; International Conference on Mechanical, Industrial and Materials Engineering 2019.

WORK EXPERIENCE

➢ **Missouri State University** January 2021- Present
Graduate Teaching Assistant

- Demonstrated strong organizational skill by teaching related theories and instructing undergraduate class of Introduction to Physics-I and Foundations of Physics-I lab courses
- Attended weekly TA meeting with lab supervisor and fellow TAs to enhance teaching materials (lab manuals), inspect lab instruments to ensure the overall quality of the course
- Supervised experiments, prepared quizzes, graded lab reports and provided feedback to students

➢ **Abul Khair Steel Products Limited (AKSPL)** November 2019 - December 2020
Metallurgical Quality Engineer

- Checked the pot-chemistry of Zinc and Aluminium alloys for galvanizing sheet steel using an OES spectrometer.
- Led the quality assurance laboratory of 22 team members for regular testing to ensure physical quality of galvanized sheet.
- Conducted regular quality inspection and analysis for product development by eliminating manufacturing irregularities such as corrosion, cracks, strength variation, surface decolorization.
- Documented and compiled paperwork for ISO 9001:2015 certification audit.

STANDARDIZED TEST

GRE: 315 (Q:165, V: 150, AWA: 4.0) August 2019

ACTIVITIES AND ACHIEVEMENTS

- Volunteer at Ozarks Food Harvest April 30, 2022, Springfield, MO
- Volunteer at Science Olympiad February 26, 2022, Missouri State University
- Member and Blood donor of BADHAN, BUET zone.
- Mentored ~15 impoverished school students in 2016-2019 in Bangladesh.

HONORS AND AWARDS

- Physics and Astronomy Department and Friends Scholarship 2022-2023
- Bangladesh Government Scholarship -Awarded to the top 100 students in the nationwide exam 2012-2014

REFERENCES

Dr. Robert A. Mayanovic
Distinguished Professor, Department Head
Dept. of Physics, Astronomy and Materials Science
Missouri State University, Springfield, MO, USA
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Dr. Ridwan Sakidja
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