Mudassir Farooq

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Profile:
Current Status: PhD Scholar at NED University of Engineering and Technology
Research Title: Development of Copper-Based Reinforced Polymer Matrix Composites for Thermoelectric Applications
Current Status of Research work:

- Polymer matrix (PANI) has been developed by using optimized reagent concentrations.
- The characterization of developed matrix such as XRD and DSC is completed which is in complete agreement with the literature.
- Pallet samples of Polymer (PANI) having 12.7 mm diameter are prepared for electrical and thermal conductivity testing.
- Electrical conductivity at room temperature has measured.
- Currently working on PANI-Cu_2Se composite synthesis.

Education:

Master of Science in Materials Science & Engineering

King Fahd University of Petroleum & Minerals, Saudi Arabia Jan. 2015 – June 2017

- Thesis: **Effect of microstructure and densification of FeCrMo based nano-crystalline alloy on the corrosion performance in chloride environment**.
- CGPA: **3.71/4.0**

Bachelor of Engineering in Metallurgical Engineering

NED University of Engineering & Technology, Pakistan Jan. 2009 – Dec. 2012

- Final Year Project: **Reasons of excessive industrial corrosion rate and its remedies on steel structures located near coastal area of Karachi.** (Proposed and facilitated by Tuwairqi Steel Mills Limited, Port Qasim, Karachi.)
- Percentage: **81% (1218/1500)**

Professional Experience:

Lecturer in "Materials Engineering Department"

NED University of Engineering and Technology Since November 2018

Taught following Courses:

- MM-301: Corrosion: Protection and Preventions
- MM-305: Polymer and Composite Materials
- MM-309: Construction Materials

Also, working as a Third Year Class Adviser and Internship Coordinator; some duties include:

- Managing Third Year Classes and Time Table.
- Facilitating course Teachers and students.
- Arranging Students Industrial Internships and their Feedback.

Research Experience

NED University of Engineering and Technology

Co-supervision of Master Thesis:

- ❖ Thin Layer development on additively manufactured aluminum specimen. (*2023*)

Supervised and co-supervised following Final Year Design Projects:

- ❖ Design and Development of piezoelectric composite material for flexible sensor application. (*2024*)
- ❖ Development of Prototype set-up for Copper extraction from locally available ore. (*2024*)
- ❖ Design and Development of Green Nanoparticle incorporated Nano Composite Coatings for improving corrosion resistance of metal. (*2023*)
- ❖ Design and Development of pavement bricks by substituting cement from fly ash and other and cost effective raw materials. (*2023*)
- ❖ Lifetime estimation of thermally degraded instrument cable in power plants. (*2023*)
- ❖ Design and development of green composite using natural fibers and gelatin matrix. (*2020*)
- ❖ Strengthening of Insulating False ceiling with waste Plastic. (*2019*)
- ❖ Graphene enhanced zinc epoxy coating for corrosion protection of carbon steel. (*2018*)

Master's Research in Materials Science & Engineering

King Fahd University of Petroleum & Minerals, Saudi Arabia Sept. 2015 – June 2017

Fabrication, characterization and corrosion behavior analysis of nano-crystalline bulk FeCrMo alloy, produced from amorphous alloy powder through spark plasma sintering technique.

- Characterization (From initial amorphous powder to final sintered samples).
- FE-SEM, EDS, XRD, DSC, Optical Microscope and XPS are some main characterization tools used in this work.
- Corrosion behavior analysis in chloride environments through electrochemical techniques such as Electrochemical Impedance Spectroscopy (EIS), Linear Polarization Resistance (LPR) and Potentiodynamic Polarization (PDP).
- Passive Film study through XPS and FE-SEM.

Research Assistance in "Center of Excellence in Nano-Technology" (CENT)

King Fahd University of Petroleum & Minerals, Saudi Arabia March 2015 – June 2017

- Proficient in operating Field Emission Electron Microscope equipped with EDS, FIB, GIS and EBDX camera.
- Operating XRD and proficient in using XRD data analysis software (PDXL).

Research Publications:

Journal Articles:

1. A. A. Sorour, **Mudassir Farooq**, A.Mekki, and A. M. Kumar. Corrosion of a spark plasma sintered Fe-Cr-Mo-B-C alloy in hydrochloric acid, *Metallography, Microstructure and Analysis*,**10**, 291- 301, 2021.
2. Muhammad Fahad Riaz, Muhammad Samiuddin, **Mudassir Farooq**, Intizar Ali shah. Analysis of Tafel polarization scans of Magnesium-Steel galvanic couple under different Corrosive Environments at various Temperatures, *Revista de Metalurgia*,**58**(02), 2022.
3. M.Sohail M.Sohail Hanif, Usama Ather, Hamna Siddiqui, Arsal Sohail, Asad Raza, Moiz Sarwar and **Mudassir Farooq**. Design of experiments for green tire tread compound development by reducing conventional carbon with an eco-friendly filler, *Materials Science Forum*, 1068, 71-78, 2022.

4. **Mudassir Farooq**, M.Sohail Hanif, A. A. Sorour. Corrosion of spark plasma sintered Fe-Cr-Mo-B-C alloy in simulated seawater environment, *Journal of Metals, Materials and Minerals* 33 (1), 27-38, 2023.
5. Muhammad Samiuddin, Jinglong Li, **Mudassir Farooq**, Jiangtao Xiong. Nano-indentation and corrosion behavior of diffusion welded CoCrNi Medium-entropy alloy (MEA) and SUS 304 stainless steel joints, *Revista de Metalurgia* 59(03), 2023.