

Cover Letter

My motivation to apply **Advanced characterisation of next generation battery materials** is driven by my Materials science and Physics related skills. I want to do my future research in Nanomaterials composites which can be used for energy storage materials. because for this study I'm confident that an idea will come straight into reality. This position will allow me to act both independent and dependent researcher that I am too flexible. So, I would like to expand my professional horizons by seeking new challenges in the area of development and characterization of material.

I accomplished my master's Degree in Material Research at **Queen Mary University of London**. The courses in my professional major encompassed not only the conventional of materials, but also gave me insight into physics and chemistry of Advanced Materials in details. That's why I pursued my MS thesis "**Characterization of novel 2D Layered double hydroxides (LDH) with the incorporation of polymer and without polymer for dental materials applications**" under the supervision of Dr Andy Bushby. The LDH material characterized by different techniques such as, Scanning Electron Microscope, Powder X-ray diffraction (XRD), FTIR, Energy dispersive X-ray spectroscopy (EDS), Particle size Distribution, Light-Optical Microscopy, Ion Selective electrodes (ISE).

Before this, I did my MSc Physics (Nano-technology) project '**Synthesis and characterization of copper oxide Nano-particles by green synthesis using by azadirachta indica and chemical co-precipitation method**'. In this project, I did comparison of copper oxide Nano-particles and the results of this research showed that the copper oxide Nano-particles in terms of size, shape and morphology gives better results by using green synthesis method as compared with the coprecipitation method. I did work as a researcher with the Nanomaterials Research Group at Pakistan Institute Nuclear science and technology, Nilore, Islamabad, Pakistan. Where my project theme was **Develop metal-oxide Nano-clusters based function nanomaterials of controlled morphology and chemistry for application in sensing and energy storage.**

During my study and research work I have learnt technical knowledge pertaining to materials science and research. I feel proud to say that I have developed my understandings in its technical aspects such as studying the relation between the structures and properties of various kinds of materials, researching different combinations of molecular properties of various materials resulting in an outcome of a new material or a product, finding imperfections in materials and constantly working on them to improve its standards and working on analysing the economic and environmental factors that affect the production as well as usage of materials. I assure you that my interest with full whole-hearted research in your organization will be among the best fruitful projects. To work and research in your organization will be an ever-great honour and prestige for me. Thank you

Yours sincerely,

Tayyaba Rabnawaz

Publication

1. Functionalisation of graphene oxide . Rabnawaz T, Seifalian AM. Submission to Nano Review and Experimental. 2019.