STATEMENT OF PURPOSE

I introduce myself as a postgraduate from University of Mysore, India with specialization in General Chemistry. The purpose of this letter is to supply basic information about my education also my academic interests and future plans, since I would like to apply for PhD position in electrochemical energy storage research at University OF Manchester under the supervision of Ali Gholinia and Debalay Chakrabarti. I have a great interest in NANOPARTICLES AND THEIR STUDIES IN ELECTROCHEMICAL FIELD. It is my goal to serve as a faculty member at a pioneering university, working in material field and contribute to the society and the country's growth and welfare. I believe that this programme can help in building my career.

I did all my schooling for 14 years in English as my medium in India. Then started my graduation at an Institute with Bachelor of Science and Education with Physics, Chemistry, Mathematics and Education as major subjects at Regional Institute of Education Mysuru, India which gave me foundation about how to view different fields of science. Later I continued with master's in general chemistry at University of Mysore, India, where I had good opportunity to experience the advance studies in both theoretical and practical aspects including a dissertation programme on Nano Particle synthesis by Laser ablation technique and its characterization.

In summer 2018, I went to Indian Institute of Science, Bengaluru, India as a research fellow under summer research fellowship programme by IAS, India to do my internship programme in Solid State and structural chemistry unit lab. Prior to the laboratory work I made a wide *literature survey on construction, working of rechargeable batteries, lithium-ion batteries (LIBs)* and then carried out synthesis of hallow and doped (with the metals Sn-Sb) Carbon Nano fibers using PAN a polymer by electrospinning technique for rechargeable battery application. Also, I have constructed electrodes from the carbon fibers and checked its application in batteries by running Cyclic Voltammetry at different variables and conditions using a particular electrolyte of different concentrations for different trials. During this work the synthesized carbon fiber was characterized using Powder X-Ray diffraction, Thermogravimetric Analysis and Fourier transform infrared spectroscopy. This analysis was done in order to estimate the carbon content present in the synthesized samples. The characterization results favored the objective of the work which helped to proceed through the experiment on application of battery Via CV. Upon comparison with the variables the efficient *electrode system with electrolyte concentration* was found, under particular scan rate in Cyclic Voltammetry, using which *cell works with good energy storage efficiency*. Finally, the project entitled as "SYNTHESIS AND CHARACTERIZATION OF CARBON NANO FIBERS BY ELECTROSPINNING TECHNIQUE FOR RECHARGABLE BATTERY APPLICATIONS" and published the same in the official website of IAS. (Specific details regarding project has been attached with CV). This internship made me to learn how to write thesis, taught me laboratory skills and techniques including safety issues in the lab. I have also learnt time management skills, peer interaction and gained many ideas based on conceptual discussions with the co-labmates. I became able to integrate myself, working with a team where each of the members can learn from the others without any form of hesitation.

In 2020 winter, I went to National Institute of Technology Karnataka, India as a junior research fellow sponsored by INMAS – DRDO R&D project, Ministry of Defence New Delhi and worked on a project entitled "DESIGN AND DEVELOPMENT OF AFFINITY BASED SENSORS FOR THE DETECTION OF RADIOLOGICAL COMPOUNDS IN POINT OF CBRN EMERGENCIES USING ZNONPs FUNCTIONALIZED BY AMIDOXIME AND MUGENIC ACID". In this project I performed *individual research* of Synthesis and characterization of ZnONPs using XRD, TGA, FTIR, Fluorescence Spectroscopy, UV-Visible spectroscopy, SEM/EDAX, ICP-OES. Functionalization of ZnONPs with Amidoxime (ZnO-A.O) and its characterization studies. Used ZnONPs and ZnO-A.O as sensors for the detection of Co(II) and Sr(II) ions. As a research fellow I exposed and explored the scientific aspects in the research field. My previous intern skills helped and made me to learn and do things such as build the project proposal, explore efficient experimental techniques, construction of new experimental setups for the synthesis purposes in the laboratory, write the reports, presentation of the work done independently. I was also into the instrumentation, where I have handled and operated several instruments and was in-charge of fluorescence Spectrophotometry instrument in the lab. I was engaged in peer discussions, guiding interns. I have learnt that commitment is highly necessary for the success of an individual in any given project.

I realize that this project can contribute greatly to develop the energy storage devices which are-all time important in day-to-day life.
Yours sincerely,

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