

## **Cover Letter Mohammad Ansar**

First of all thanks for considering my application and patience in reading my letter. The following sessions I will give a briefing about my life and my suitability for the proposed research. I was born and brought up in Kerala, India. While looking back into my life I could find that My driving force in engineering is my passion for mathematics, in my school days I always remained topper in mathematics. I loved mathematics. Eventually, this leads me to take engineering as my bachelor's, I have chosen Polymer Engineering because of its uniqueness. During my engineering studies, I realized that visiting polymer industries are the best way to learn. So I started internships in approachable industries. Through these visits and my curriculum, I gain the fundamental understanding of polymer science and its engineering.

Unconsciously these experiences created Passion and curiosity in Polymer science so I decided to continue my studies. In India due to the huge population, it's highly competitive to place admission in Indian premier institutions like the Indian Institute of Technology(IIT's). I started preparing for the competitive examination and Achieved The All India Rank of 224 and secured admission at the Indian Institute of Technology, Kharagpur for a Master of Technology. The curriculum, professors, environment, and master's research gave me guidance to take research as my career. I did my master's research in polymer synthesis of biobased epoxidized natural rubber and characterized in FTIR, DSC, TGA. This is the fundamental experience required for the proposed research

After two years of experience in the most Premier university experience created an ambition to do my research in a top-class university, which is one of the reasons for choosing your university. Directly after graduation, I got an offer from a prestigious biomedical research institution in India, Sree Chitra Tirunal Institute for Medical Science and Technology(SCTIMST) as a senior project engineer at the Division of polymeric medical devices. This position turns my perspective of polymers from just engineering materials to human savior biomaterials. This is the key experience making me suitable for this position. Like the proposed research my nature of work is also interdisciplinary, I have to co-work with Designers, Mechanical Engineers, Doctors, Scientists, and other scientific experts in various disciplines. while working at SCTIMST I gained very good interactive skills, this continuous communication broadens my knowledge from everything about little to little about everything. This experience is helping me to input out of box ideas for solving problems. I hope that this experience will be an asset to the proposed research

I recruited for developing a biocompatible and biostable polymer coating for implantable medical devices using (poly para xylylene) parylene polymer via chemical vapor deposition(CVD) method. I established a Parylene coating system and optimized coating thickness. From the characterization mechanical studies, biological evaluation, and implantable studies we found that the polymer is useful as biomedical device coatings.

For making the prototypes for the biomedical implantable devices, we installed a 3D printer under my responsibility, This is another key experience making me suitable for the proposed interdisciplinary research. For this project, I am associating with one senior neurosurgeon and making custom cranioplasty. After having a thorough literature survey I came to the conclusion hydroxyapatite (HAp)-poly (ethylene co vinyl alcohol) (EVA) composite choice, the composite mixed in Brabender and extruded as a filament and started 3D Printing.

In conclusion, the listed reasons I am suitable for the proposed Research

1. Batchelor and Master degree in polymer Science in Premier university with Remarkable all India rank demonstration fundamental knowledge in Polymer Science
2. Masters research In Polymer Synthesis characterization experience is a valuable asset because this proposed research also dealing with Polymer Synthesis
3. Work Experience in the prestigious biomedical interdisciplinary research institution in India will add two necessary qualities.
  - a. Experience in biomaterials, testing, and characterization of biomaterials like cytotoxicity, hemocompatibility, and other animal implantation studies
  - b. Fundamental knowledge about other scientific disciplines and communication skills with other scientific experts.
4. Experience in developing biomedical device protective coating will be useful when handling medical devices
5. Experience in 3D printing and 3D Designing software Creo CAD software will be helpful while making prototypes of the medical devices for the proposed research

The Ph.D. title will give a kickstart to my future research career.. So I am considering this position is a great opportunity to excel in my career in biomedical research, I hope that my Work experience at Sree Chitra Tirunal Institute for Medical Science and Technology (SCTIMST) will be an added advantage to pursuing research.

Thank you

Mohammad Ansar