

Statement of Purpose

Chemistry is not merely a study of matter. It is the study of life itself. The order of the whole cosmos is based on the chemical phenomena that make interactions in every moment. The story of my entrance into the area of chemistry begins in my childhood. From an early age, I was curious about the world around me. Therefore, during my teenage years, I watched different scientific documentaries, read many magazines designed for teenagers, and included various scientific facts. In the same vein, I was very talented in high school in scientific subjects like chemistry, mathematics, and physics. In particular, the colorful and wonderful chemistry area was quite attractive to me. At the school laboratory, I observed some simple yet thrilling chemical experiments that were very appealing. My chemistry passion compelled me to view it as an obsession, a hobby, and a profound science with a universe of unending discoveries. Hence, I spent my free time reading more and more about chemistry and its active role in humans' lives from various internet websites.

The chemists are involved with the art of creation as they create new substances produced by the composition of other substances. Besides, the science of chemistry knowledge enables me to fully understand the essence of the food I eat or the things I use in my everyday life. Furthermore, this major offers outstanding occupational opportunities for its graduates. Hence, with its laboratory courses, this fascinating major is a very pragmatic field that is not limited to the theoretical domain, and its scholars contribute to the world. Accordingly, I decided to study chemistry at university, and with a dynamic character and a decisive heart to attain this vital aim, I managed to be admitted to the Sharif University of Technology (SUT), the best university in my country, to study for a bachelor's degree in the major that enchanted my soul. Being accepted from my favorite discipline was one of the most fulfilling moments of my life.

University life turned out to be absolutely precious for me as I got to improve my talents in plenty of domains, including planning, solving problems, working independently as well as with teams, becoming sociable, and most importantly, being innovative. I must confirm that a significant factor for me in my time in academia has been preserving the link between practicality and theory. I believe this outlook toward academic work stems from the fact that I started my studies in applied chemistry at one of the best universities in Iran, which has close links to the industry. Even as an undergraduate student, my goals were clear; I was determined to narrow my interests down in my field and get into the domain of conducting research. I took a deep interest in lab courses such as "General Chemistry Lab I" and "Organic Chemistry Lab II." Throughout my studies for a bachelor's degree, I strived to gain a deep understanding of all the courses I passed since I knew they would form the foundation for my future studies.

Upon completing my bachelor's degree, to take the next step towards achieving my objective of being involved with research, I decided to do my master's degree in this field. As is the case with the nature of postgraduate study, I was keen on figuring out the exact area in which my interests lay and choosing a topic for my thesis accordingly. Through much research and consultation, I could research a decision to work on synthesizing 2-Aminoterephthalic acid, one of the practical raw materials used as a ligand in Metal-Organic Frameworks and coordination polymers. Since this is an imported material in my country with a high price, I decided to work on

it and succeeded in synthesizing it with high efficiency. I also submitted the process of synthesis to the Intellectual Property Center.

Moreover, I taught other students in our laboratory the method of 2-Aminoterephthalic acid production and currently, this method is widely used. Then I synthesized several crystal structures with this ligand and some lanthanides by new methods, and I recorded data of single-X ray diffraction analysis of one of these Metal-organic Frameworks in the Cambridge database with the code CCDC 147610. I have become familiar with some applications such as Mercury and Diamond throughout this process. Specific features of this structure allowed me to utilize it in the absorption of water pollutants with high efficiency, and the results of a part of my research are published in Chemistry Select Journal. Being immersed in conducting research as a postgraduate student set the context for me to shape my goals for my future research. Provided that a part of my work as a master's student revolved around coordination polymers, I took a deep interest in the vast topic of coordination complexes. The prime reason for this is that it has a wide array of usages and applications for areas such as Bioinorganic Chemistry, industry, and analysis. This has been the prime factor leading me to the decision to direct my efforts toward academic research.

In light of all that has been said and putting my objectives into the picture, it is safe to say what naturally comes after this stage is my decision to become a part of an auspicious academic atmosphere to contribute as a researcher and work towards my goal of becoming a researcher in this field. To accomplish all this, the first step has been to search for programs whose scope aligns well with my aspirations. In doing so, I have come across the program offered by the University of Minnesota and, more importantly, Professor Mereddy's work on the new generation of anti-cancer agents and the discovery of new synthetic methods and reagents. Being fascinated by his research, I contacted him and was allowed to elaborate on my background and goals. Considering the cutting-edge research facilities, vibrant atmosphere, and Professor Mereddy's encouragement to be a part of his research group, I am confident that my time at this university will prove immensely fruitful in both materializing my goals and bringing about constructive change through carrying out research.