

Dear Prof. Alan Drew and Dr Ana Sobrido

I am writing to express my interest in applying for the PhD in Advanced characterisation of next generation battery materials. This cover letter aims to show my competency and motivation in pursuing the project. I am pursuing BEng Mechanical Engineering degree at QMUL with my thesis focusing on scientific device, namely Low-cost Magnetic Tweezer, which helps to study mechanical properties of biological macromolecules, or proteins in single-molecules. The goals of this project are to build and evaluate the accuracy of this scientific instrument through new ways of force calibration.

As I worked very closely with the equipment related to the PhD postgraduate research in the robotics and chemical labs, I believe that I will advance and adapt quickly upon entering this PhD program. Over the course of completing a BEng in mechanical engineering at QMUL, I feel that I successfully made a transition from seeing the physical sciences as subjects to be learnt through textbooks and supervised laboratory work to viewing them as constantly evolving disciplines, characterised by near-limitless unanswered research questions. In my final year I developed a very strong interest in physical engineering, generated initially by taught modules, and subsequently strengthened through completing a research project in this area. My interest in this area has endured due to the engrossing experience of carrying out this research and my recognition of the crucial role that physical engineering research has played, and will continue to play, in creating best solution for problems. The basis of my love of engineering science has therefore shifted from a desire to learn, to a wish to help push the boundaries of scientific knowledge.

Having developed a solid interest in physical engineering, I now wish to take the first step in embarking upon a career in scientific research through studying for a PhD in Advanced characterisation of next generation battery materials. My BEng has provided me with both a well-rounded understanding of the engineering and physical sciences behind the technology which helps to the behaviour of materials and their properties under different conditions, and a firm foundation of knowledge and research skills, upon which I hope to enhance further through completing the PhD. Having studied the research specification and job description for this role, I feel I have the skills, qualities and attributes to produced results required to a very high standard. I also feel the role will give me a new, fresh challenge; something which I have been looking forward to for some time now. Also, being a full time student of QMUL made me understand how research is being carried out in the school.

If I am successful, I plan to stay with QMUL for a long time. After reading the job description I understand there will be opportunities to both train, develop and take on further qualifications within QMUL – this is something that is very much appealing to me as I always like to grow and improve as a student. The possibility of gaining a much greater level of competence in these areas attracts me to the PhD. I wish to follow up PhD research with a postdoctoral research career, and as a result I see it as vital that I gain a thorough grounding in research skills and methods associated with medical engineering. I am equally enthusiastic about the prospect of studying taught courses that focus explicitly on materials research. Above all, I look forward to applying the theoretical and practical grounding that I gain to carrying out research in PhD level.

Indeed, quite apart from my deep intellectual interest in the research in materials, I hope, upon completion of the PhD, to carry out postdoctoral research, and ultimately contribute to human wellbeing through working as a postdoctoral researcher in the field. I am looking forward to be one of your outstanding students as I am right now in my final year, and I am confident that I can be a real asset to your institution.