

IGS Scholar's Name: Ang Huixiang
Research Centre: ERI@N

1. What were you doing before PhD studies?

Before my PhD studies, I was pursuing my undergraduate degree in Chemistry in Nanyang Technological University (NTU). I took up some research programs during my undergraduate studies. For example, I participated in summer research in my PhD co-supervisor's laboratory during my 2nd year of undergraduate studies. I also did my Final Year Project (FYP) in one of the ASTAR institute, named the Institute of Material Research and Engineering (IMRE).

2. What motivates or trigger you to pursue a doctorate?

My determination to pursue a doctorate after my undergraduate studies was always firm ever since I was 19 years old. At that year, I joined one of the ASTAR companies called Institute of Chemical Engineering and Science (ICES) for internship and exposed to the research environment for the first time. Surprisingly, I fell in love with research work immediately. Having seen my passion in the research field, I was advised by my mentor in ICES to pursue a PhD in the future if my determination to excel in the research field gets stronger and firmer. And that was the main reason that I took up this PhD studies with my 100% efforts.

3. Why or how did you decide to apply to IGS or the interdisciplinary route of research?

The reason that I have applied to IGS route is a simple, honest and realistic one. The main reason is that IGS has given me a chance to interact with students working in various research fields which are different from mine. Through frequent communication and interactions, I have been greatly benefited and inspired with new ideas for my projects. In addition, IGS provided me with generous student allowance, which allowed me to focus on my studies and researches without worrying about any financial difficulties.

4. What is your thesis about?

My thesis is about fabricating some transition-metal based electrocatalysts for high energy storage devices. For the material fabrication part, I have worked on metal oxide, noble metal, and metal carbide materials for electrocatalytic processes, such as hydrogen evolution reaction, oxygen evolution reaction and oxygen reduction reaction. All these processes have great influence in improving the energy efficiency, capacity and cycling ability of the high-energy storage devices (for example, Li-O₂ batteries and fuel cell applications).

5. Why did you choose this topic and how does it benefit people or industries globally or internationally?

I chose high-energy storage devices as my topic, because over the past few years, the energy demand is increasing while the energy supply (e.g. burning of fossil fuel) is depleting. Therefore, finding an alternative energy solution becomes very important. High-energy storage devices allow us to store energy and use them whenever we like. In addition, if we can improve the energy efficiency of the energy storage devices, we will be able to increase the amount of energy

workload, thus lower the energy cost, increase industrial productivity and help to decrease the global warming level to the acceptable limit.

6. What kind of interaction did you have in IGS? How did that help you?

By joining IGS team, it helped me to improve my interpersonal skills. IGS allowed me to interact with people from different faculties, research areas, national cultures, races, and religions. Additionally, it helped me to expand my social network, which might come in handy for my future career advancement. Also, we get a chance to attend weekly seminar which help us improve our presentation skills and we could widen our knowledge by listening to seminar presented by other specialists from other research fields. Lastly, IGS team also held weekly buffet, festive gathering, outing so that we get opportunities to interact with professors and have a good work-life balance.

7. What are the challenges you faced during the candidature and how did you overcome it?

There are several challenges I faced during the candidature. For instance, work-life balance and the nature of research. For work-life balance, I countered it by planning my schedule ahead so that I can accomplish the work on time while keeping a well-balanced work-life. For nature of research, I classified it in to two parts: the scientific approach and engineering approach. Different nature of research requires different approach to solve. For instance, for scientific approach, I tried to overcome it by thinking of all possible hypotheses to address the issue, followed by testing each hypothesis by doing experiments and eliminate the least possible ones before suggesting the most possible hypothesis. For engineering approach, in general, I tackled it by defining the goal of the project first, finding out what approaches to the problem have already been tested then mind-mapping them to see what I can do to improve the design.

8. What was your proudest moment or fondest memories over the years of candidature? E.g awards, overseas conference, patent, published papers, etc.

The proudest moment of my candidature was that I passed my oral defence and I got my PhD confirmation. The fondest memory was that I had a chance to go overseas conference in Lille, France. These were the few most important accomplishments I achieved for the first time in my life.

9. What do you think are the attributes for PhD students to successfully go through the 4 years?

I think the most important element is passion. Passion in research is the main attribute which kept me going throughout the 4 years of PhD studies. Next, always be positive. Despite of many obstacles and failures we have met, always try to look on the bright side of life.

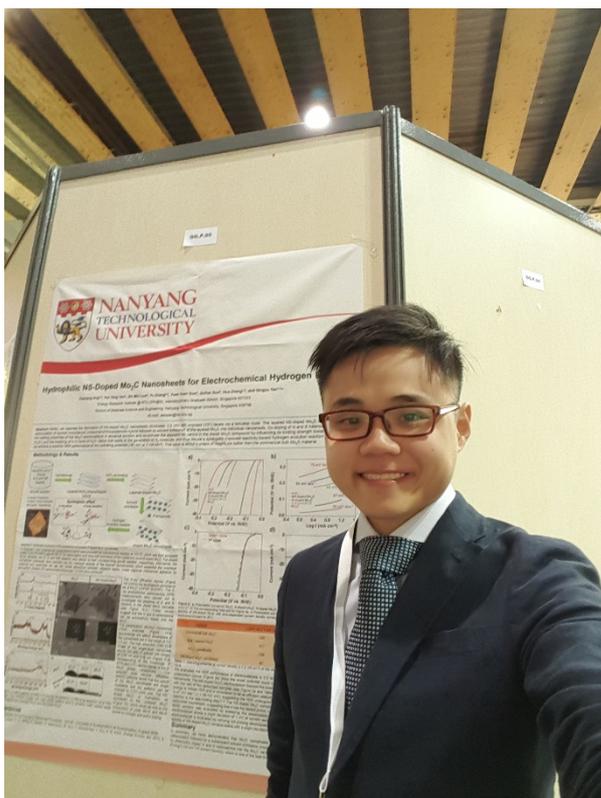
10. Please share 1 key motivational/ key take away message with your juniors?

No matter what is the outcome, life still goes on!

11. How does it feel like when you received the scholarship offer?

I feel happy because I got it. I feel excited because I am going to embark onto the next journey of my life. I feel anxious as I do not know what will happen next.

12. Share with us some memorable photos you've taken with 1 line description of each photo. (e.g. Overseas conference, interactions in IGS, etc)



Poster presentation at EMRS conference held at Lille in Spring 2016.



After my poster presentation at Lille, I went to Paris to explore around (Photo of me and the Eiffel tower).



Housekeeping of laboratory with my group mates.



Having steamboat with my supervisor (Professor Alex Yan)

13. What will you miss after graduating?

I will miss the fun doing experiments with my friends and colleagues in the laboratory; miss the administrators who assist me in all my administrative work; and supervisors for their guidance and encouragement throughout my PhD studies after graduating. They have left footprint in my heart, and I will never ever forget.

14. What is your next adventure / challenge or any plans for the future?

My next plan is to do 2 years of post-doctoral overseas and come back to Singapore and apply for academic position.

15. Is there anything you want to say to your family, supervisors, mentors, friends or anybody?

I want to thank my supervisors for their patient guidance and expertise throughout my PhD study. Next, I would also like to extend my appreciation to all my collaborators and friends, who have share their knowledges with me and help me in my projects. Also, I would like to thank the administrative coordinators who is extremely supportive and helpful for my administrative tasks. Last but not least, I would like to sincerely thank my family members, who have been always there for me by encouraging me during my downs and celebrating with me during my ups.