

IGS Scholar's Name: YU CHEN-CHIANG

Research Centre: ERI@N

1. Your current employment details (Designation, name of company, country and scope of work)

Name of company joined: TEXE.G. Co. Ltd.

Country of company joined: Japan

Designation: R&D assistant supervisor

Scope of work: Developing thermometric generator/cooler materials for low temperature operation (< 400 K, temperature difference < 20 K). Introducing microfabrication method to achieve performance and dimension requirements for the end products.

2. What were you doing before PhD studies?

I worked for a semiconductor manufacturer ASML. Our department refurbished our lithography system (stepper and scanner) and resale to the costumers. My responsibility was to make sure all the functions meet the required specification, and if not, finding out the root cause and fix it.

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

I wanted to do research work and discovered new things, PhD training would be helpful for my career. Therefore, I seek for the chance for higher education. Luckily, my supervisor was recruiting PhD and the topic was match with my interest, and I joined NTU.

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

Currently, the problem we are facing are more complex than ever. It is more difficult to solve today's issue by single discipline. And people are noticing this trend. I think NTU made a wise choice to setup an interdisciplinary school, it would be the future trend, so I decided to join IGS.

5. What is your thesis about?

My thesis is focus on developing the cathode for low-temperature solid oxide fuel cell. The operating condition is at 300 to 500 °C. In this temperature range, most of the available cathodes were either too expansive or low-performance. Therefore, we want to develop a new cathode to fulfil the needs for low-temperature fuel cells.

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

Energy related researches draw a lot of attention today to relief the climate change as well as secure the energy sources for future. This is a global issue and researchers put the effort to solve these issues. I also want to put my effort in energy related work and such kind of work can be widely used around the world.

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

IGS provides various activities, which offer useful information and offer opportunities to network with other students and researchers. Such kind of activities help us to form strong connections and could help us not only on research but also the career life.

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

First is the research, it is not an easy task to start a new topic, especially in the foreign environment. But luckily I have a supportive group member, through numerous times of discussion I learn the research skill and I finish my PhD journey. Second is the balance between research and family. But thanks to my wife's support, I could put more focus on my work.

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

Actually I am proud every time I reach an achievement. Worked day and night and passed the qualify exam, when I struggle for two years and published first paper, attend International conference overseas, and won a business competition award.

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

The most import is working smart and hard. Also, PhD students need to work collaboratively to go further. Build a supportive relationship with others is essential.

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

Don't afraid to problems, difficult problems make a PhD more valuable. Try to stick on the problem you face and don't give up easily. You will always get something at the last.

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

I don't know how to describe but it is a very exciting moment, I knew I am going to start a new life and my future would be very different.

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



Our research "Nano Thin Film Micro-Solid Oxide Fuel Cells" won first runner-up in 2015 LES Asia Pacific Student Business Plan Competition.

14. What will you miss after graduating?

I will miss endless discussion and brainstorming with my colleagues. Day and night working for the deadline. And hunting for free food.

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

I will start my new career in Japan, working on thermoelectric research for company. Aiming to realize ideas to real-life products.

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

Even this would be cliché, but without my family's support, supervisor and mentor's advice, and friends' help, I may not be able to complete my PhD work. Truly thanks you all, I am proud to have you in this journey.