

## Advanced Research Scholar – Post-Masters

### Lance O’Hari Go

Ateneo de Manila University



**Field of Study:**  
**Research Period**  
**US University**  
**US Professor**  
**Research Title**

*Materials Science/Chemistry*

*May 2017- April 2018*

*University of California- Berkeley*

*Prof. Vivek Subramanian*

*Application of inkjet printing for the rapid optimization of perovskite solar cell constituents*

#### Describe your research conducted in the US.

Inkjet printing is a technology that has found use in increasing number of applications in solution-based chemistry. It accurately delivers a precise amount of ink droplets on a solid or flexible substrate of the researcher’s choice. As such, it can be used in rapidly screening materials which are good candidate, in terms of efficiency and stability, for perovskite solar cells. This however requires the careful manipulation of ink rheology and substrate properties to produce films with good morphology. The overall goal of my project is to formulate inks of different perovskite solar cell precursors and screen them for efficiency and stability using inkjet printing.

#### What was the highlight of your research in the US?

One would assume that the highlight of my research here happens in the laboratory. While spending valuable time in state-of-the-art laboratories is important, it is the time spent thinking and preparing for those experiments and the time spent interpreting the results that matter a lot. And both preparations and result interpretations are a whole lot easier and useful with the guidance of my host professor and with the help of fellow groupmates here.

#### In what way has the USAID scholarship changed you?

USAID has given me the opportunity to join and do research in a highly competitive research group without needing to worry about research funding and other miscellaneous problems. Doing research here has taught me to look at a different perspective of approaching a problem at hand. In a way, it altered the way I think in terms of dealing with a research problem- to address it in the most effective way possible. One such example is using Design of Experiments to map out the response of my experiments as a function of controllable and uncontrollable factors.

#### How would you use the knowledge and skills gained through your research to contribute or influence economic growth in the country?

Whatever I learn [in the US] is going to be relayed to my colleagues and students back at home. It may be hard to imagine that whatever I teach back at home will have significant impact on the economic growth of the country. Doing research work and teaching in an academic institution have ripples of effect that are hard to measure, yet they have meaningful impact on students who later on join the work-force and give back to the economic growth of the country.

#### As a young scientist, what do you envision for the Philippine science, technology and innovation ecosystem in the next 10 years?

The STI environment in the Philippines is slowly growing but, without the help of experienced scientists, it’s going to grow at a very slow rate. Although there have been opportunities from Philippine agencies such as CHED and DOST, as well as from countries such the US and the UK to boost STI capacity in the country, most scientists who have been trained here and abroad, unfortunately practice their profession outside the country. This is due to the lack of convenient and efficient system for undertaking STI in the Philippines. Recently, I have seen some legal reforms that aim to build a more efficient system of doing science in the country. As long as we see experienced scientists going back and contributing to the country, we will see a steady growth in our STI capability that may be globally competitive in 10 years.

*After completing his research in the US, Lance intends to share what he has learned with his colleagues at Ateneo de Manila University. During that period, he also plans to pursue further studies in the next 4-5 years. After which, he will join the ranks of Filipino academics serving in academic institutions in his home country.*

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