

Polymer Research and Postgraduate Training at Tunku Abdul Rahman University College

An interview with:



Dr. Phang Sook Waik,
Tunku Abdul Rahman
University College (TAR UC)



Dr. Sin Sau Leng,
Tunku Abdul Rahman
University College (TAR UC)

Prepared by:
Dr. Lim Teck Hock,
Tunku Abdul Rahman
University College (TAR UC)



Edited by:
Dr. Tay Chia Chay, UiTM



Polymers are macromolecules composed of many repeating units and can be of either natural or synthetic origin. Examples of natural polymers are DNA and proteins while polyethylene plastic bags, rubber and silicone are classified as synthetic polymers.

Polymers play an important and ubiquitous role in our daily life. From plastic bags used in food packaging, beauty products, controlled drug-delivery to advanced chemical resistance coating used in oil rig, products made of polymers could be found essentially in almost all aspects of human activities.

Due to their enormous potential in real-world applications and considerable commercial values, research in polymers in terms of synthesis, modification and polymer-based technologies has always been able to attract the attention of academia, governmental and industrial players.

Tunku Abdul Rahman University College (TAR UC), with its newly established research laboratories housed next to a beautiful pine-tree park in its East Campus in Kuala Lumpur, has witnessed the growth of its scientific research activities since its upgrade in 2013.

For this issue of Materials Mind, we interviewed two young and competent polymer chemists (Dr. Phang Sook Wai and Dr. Sin Sau Leng) and their Master students from the Department of Physical Science, Faculty of Applied Sciences of TAR UC, to discover their passions and interest in polymer research.

An interview with Dr. Phang Sook Wai, Principle Lecturer, TAR UC

1. Please describe your experience and expertise in polymer research.
I have over 17 years of experience in the Synthesis of Conducting Polymer, for example polyaniline and polypyrrole, and their applications. My research was supported by the total grants received amounted to RM430600 (over 6 projects) since my work in Japan.
2. Where did you work before joining TAR UC?
I was in University of Malaya (UM) for five years before joining TAR UC. Prior to UM, I have also worked as a postdoctoral researcher at Henkel Research Center at Kinki University, Japan.
3. Which industry/ industries may benefit from the research output generated from your work?
Our research is very application driven and I believe the output could find application in electronics industry (Electromagnetic Interference (EMI) Shielding), renewable energy (solar cells, solid polymer electrolyte) and waste management (heavy metal removal).

An Interview with the Master Student Ms. Khong Choy Hung

1. Could you provide a brief description of your area of research and what future industry your research output may find real applications?
My study revolves around the Synthesis and Application of Conducting Polymer Composite as Solid

Polymer Electrolyte (SPE) which could be viable future replacement for toxic and flammable liquid electrolyte (LE) used in rechargeable Li batteries. The use of SPE could help mitigate the environmental issues due to leakage of LE and to reduce production cost.



Figure 1: Conducting Polymer Composite which could be readily prepared in the form of thin film suitable for SPE applications.

2. What inspired you to pursue your MSc in Polymers Related Research?
I took an interest in conducting polymers during my final year project during my BSc. (HONs) in Analytical Chemistry degree at TAR UC. I found my supervisor very caring and TAR UC is also very supportive.

An interview with Dr. Sin Sau Leng, Senior Lecturer, TAR UC

1. Please describe your experience and expertise in polymer research.
I specialize in polymer synthesis and application and currently we are working on the green synthesis of

polyurethane which is funded by Fundamental Research Grant Scheme, MOHE.

2. Where did you work before joining TARUC?
I was a researcher at the Institute Materials Research and Engineering, A*STAR in Singapore. Prior to A*STAR, I worked in several chemical companies.
3. Which industry/ industries may benefit from the research output generated from your work?
Polyurethane with improved physical strength and chemical resistance should find applications in the offshore oil and gas industry as high performance coating materials are much needed.

An Interview with the Master Student Ms. Wong Kai Yi

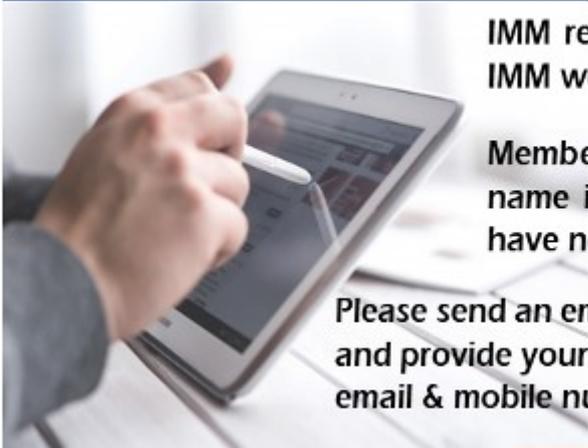
1. Could you provide a brief description of your area of research and what future industry your research output may find real applications?
My research focuses on the green synthesis of polyurethane and improving its physical and optical properties. Polyurethane is used widely in various applications. However, the raw materials of the polyurethanes are not environmental-friendly, hence, I would like to produce an environmental-friendly polyurethane without changing its original properties.



Figure 2: Ms. Wong Kai Yi uses the newly purchased rheometer from Anton Paar installed in TAR UC to measure the viscosity and study the rheological behavior of polyurethane.

2. What inspired you to pursue your MSc in Polymers Related Research?
My choice to pursue my postgraduate study at TAR UC is motivated by supervisor, Dr. Sin Sau Leng, an expert in polymer research. She has many years of research experiences. Adding to this, TAR UC also has good facilities and is well stocked with equipment and instruments for research. Moreover, TAR UC has provided a scholarship for me to pursue my master degree.

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