



# JUNIOR RESEARCHER MENTORING PROGRAMME 2022

<b>Code:</b>	JRMP2022_19
<b>School / Department:</b>	Department of Mechanical Engineering
<b>Name of Research Leader:</b>	Dr An Liang, Associate Professor
<b>Research Topic:</b>	Design and Development of a Fuel Cell Powered Toy Car
<b>Short Description of the Research Project:</b>	<p>A growing number of portable consumer electronics demand small, lightweight power sources with high power density and energy capacity. However, even with the advanced technology, the state-of-the-art lithium-ion battery is still hard to keep pace with these growing power and energy demands. Fuel cells, which can directly convert chemical energy stored in various fuels into electricity, offer the potential to satisfy the energy requirement due to their unique features such as high energy density and energy efficiency, low cost, instant recharging and safety.</p> <p>This project is to develop a passive fuel cell stack running on liquid fuel and the air, which only utilizes natural convection, diffusion and gravity to achieve the supply of fuel and air. The fuel cell stack offers many advantages, including high efficiency, low cost, simple system and rapid recharging. This project will include three parts: (1) design and fabrication of fuel cell components; (2) system integration and performance evaluation; and (3) demonstration of the stack for powering a toy car.</p>

<b>No. of Places Offered:</b>	3 - 5
<b>Frequency of Meetings:</b>	Weekly

*\* The information presented above is subject to change.*