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Research Student

My project is related to uniting the advantages of both homogeneous and heterogeneous catalysts for generating sustainably important chemical feedstocks.

Owing to rapid population growth, fossil fuels (non-renewable resources) constitute the main source of energy in our lives and fuel resources will be depleted within the next 100 years if demands are not addressed.

The emission of carbon dioxide (CO₂) to the atmosphere is another reason that traditional fuels need to be reduced. With the increased level of CO₂ and other harmful gases, the environmental issues will be presented, including, increasing Earth surface temperature, climate change, ocean acidification etc. Clean and renewable energy, such as liquid hydrogen fuel and lithium-ion battery are alternatives to fossil fuels. However, the hydrogen storage problem and spatial challenge on transportation make them unsuitable for today's transportation. Therefore, other alternatives of fossil fuels with low CO₂ emissions and more environmentally friendly are important and need to be found.

N-butanol is one of the sustainable resources and can be synthesised by biomass fermentation or transformed from ethanol via a Guerbet reaction (which is one of the reactions I am studying in my research). CO₂ transformations tends to be a popular method in

Why did you choose to research catalysis?

Because this project is related to catalyst materials and the energy problem that we are experiencing now. I could use my knowledge in catalysis research to develop the material structure which might hopefully improve the efficiency of synthesis biofuels. I also enjoy the challenges associated with characterising the catalyst structure which could provide me with insights into the catalysis pathway and develop new and improved catalytic properties.

Xuetong@UXJ JW. The reason why I chose chemistry is that it gives me the feeling that I am playing with magic like I am in the world of Harry Potter, unlike physics, you can directly see the object change before your eyes and you experience physics everyday in your life. So I thought that I would like to do more research on this subject.

Therefore, my advice is that experiencing different areas is good and find one that you are interested in and immerse yourself in it. If your inspiration is to find a career with a better salary, yes, you could choose one that fits your criteria, but you might not be happy with it as