



Contribution ID : 82

Type : Poster

### Mr Jaydon Meilak

The development of new and more energy efficient catalytic processes capable of replacing large scale industrial processes is essential to the reduction of greenhouse gasses over the coming decades. To achieve the goal of a greener society not only do these processes need to be revised but a reduction in the waste already present in our environment must also occur. The use of gallium and gallium-based alloys as solvents and catalysts has garnered increasing interest recently. It has been reported that low temperature liquid metals such as gallium and gallium alloys are able to function as highly effective catalysts for a number of interesting reactions such as CO<sub>2</sub> and Nitrogen reduction<sup>3</sup>. However, the mechanisms unique to these reactions are poorly understood and remain mostly undefined. This study will explore these systems in two major ways focusing first on low temperature liquid metals and their ability to reduce plastics; and secondly to use analytical techniques such as X-ray Absorption Spectroscopy (XAS) to observe the structural interactions and changes that occur during the reduction process, with the goal of developing a method to turn unusable plastic waste into high quality carbon products such as graphene

#### Level of Expertise

Student

#### Presenter Gender

Man

#### Pronouns

He/Him

#### Do you intend to attend UM2022

In person - Melbourne

#### Students Only - if available would you be interested in student travel funding

Yes

#### Students Only – Do you wish to take part in the Student Poster Slam

No

**Terms and conditions (Please confirm that you have read all the requirements and agree to the conditions)**

Yes

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**Session Classification :** Poster

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