



## Catalysis in Biomass Conversion

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**Date:** 15 April 2019 (Monday)

**Time:** 11:00 am – 12:30 pm

**Venue:** Room ZN902a, 9/F, Block Z, The Hong Kong Polytechnic University,  
181 Chatham Road South, Hunghom, Kowloon, Hong Kong

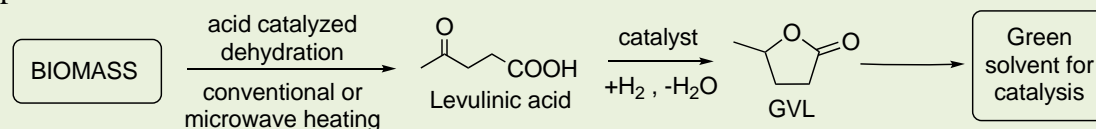
### SPEAKER'S BIOGRAPHY

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### ABSTRACT

The gradual replacement of fossil resources of with renewable ones is one of the most pressing challenges of mankind and represents a crucial part of sustainability. Biomass could be ideal alternative as they are the most abundant and globally available carbon resources on the Earth. The rapidly expanding research activity on biomass conversion has resulted in the identification of Initial Platform Chemicals<sup>i</sup> such as furfural, 5-hydroxymethyl furfural, levulinic acid and  $\gamma$ -valerolactone (GVL),<sup>ii</sup> which could either replace the currently used basic chemicals or serve as the renewable feedstock for their production. While the chemistry of these basic chemicals has been widely studied, several chemical and engineering issues have to be considered to develop a large-scale and industrially viable process.

Among these molecules, GVL has received significant interest in the last ten years and - therefore - its several innovative applications have been demonstrated for its utilization.



The presentation will focus on the evaluation of various biomass-based feedstocks including their composition and pre-treatment processes,<sup>i,iii</sup> microwave-assisted (MW) conversion of biomass to levulinic acid,<sup>iv</sup> selective transformation of levulinic acid to  $\gamma$ -valerolactone,<sup>v</sup> asymmetric hydrogenation of levulinic acid to 4-HVA followed its conversion to enantiopure GVL,<sup>vi</sup> and separation issues of  $\gamma$ -valerolactone<sup>vii</sup>. In addition, selected novel applications of GVL as a "green" solvent for catalysis<sup>viii</sup> will be presented.

#### References:

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\*\*\* All Interested Are Welcome \*\*\*

For further information, please contact Dr Dan Tsang at Tel. 2766-6072.

Free admission. Certificates of attendance will be provided to registered participants if they attend the whole lecture.