

## Special Issue on

### Conversion of Biomass to Biofuels and Chemicals by Catalytic Pyrolysis

# CALL FOR PAPERS

Today, fossil fuels which cover the majority of our energetic and chemical needs are limited in supply and depleting due to growing trends in energy consumption. Accordingly, researchers are seeking alternative sources that are renewable, sustainable, clean, and environmentally friendly. Biomass, as a renewable source, is attracting worldwide attention to meet increasing demands of feedstocks that can be used directly or indirectly in the energy and chemical sector.

In recent years, extensive research has been initiated worldwide to convert both lignocellulosic biomass and algal biomass into valuable products including chemicals and fuels, using different methods. Pyrolysis is an effective method for producing high-value products and the liquid derived from pyrolysis known as bio-oil or pyrolysis oil is generally accepted as a promising raw material for producing fuel and chemicals. However, several disadvantages are staying with bio-oil, including high viscosity, low pH, high oxygen content, high water content, and not being able to be mixed with the existing petroleum fuels. Moreover, bio-oil is also chemically unstable, due to the presence of oxygen containing and reactive functional groups such as carbonyl and carboxyl groups. In this regard, it is important to reduce the yield of carbonyl compounds in order to enhance production of more value-added chemicals. This can be achieved by in situ upgrading of the bio-oil such as catalytic pyrolysis or ex situ upgrading of the bio-oil, such as catalytic cracking and catalytic hydrogenation.

The aim of this special issue is to examine recent developments in bio-fuel production via catalytic pyrolysis of biomass. Particular attention will be paid to the development and application of novel materials for catalytic pyrolysis of biomass. In view of this, the special issue will publish both original and review high-quality papers on biomass conversion into bio-fuels and chemicals by catalytic pyrolysis.

Potential topics include but are not limited to the following:

- ▶ Biofuel feedstock- challenges and opportunities
- ▶ Development of novel catalysts for production of high quality bio-fuels/chemical products in biomass catalytic pyrolysis
- ▶ Exploration of new energy crops or biomass pretreatment approaches for biomass catalytic pyrolysis
- ▶ Mechanistic studies regarding reaction kinetics, pyrolysis chemistry, as well as catalyst functionality/deactivation mechanisms in biomass catalytic pyrolysis
- ▶ Process development, including reactor design, operating condition optimization, co-pyrolysis, steam pyrolysis, etc.
- ▶ Application of advanced analytical techniques in biomass catalytic pyrolysis
- ▶ Conversion of biomass wastes to useful fuels or chemicals by catalytic pyrolysis
- ▶ Catalytic pyrolysis of green algae for hydrocarbon production
- ▶ Green chemistry, green catalysis and green engineering of biofuel production
- ▶ Process intensification, microwave and ultrasound applications
- ▶ Single-pot conversions, multiple and sequential recovery of bio-products
- ▶ Energy, environmental and economic footprints

#### Lead Guest Editor

Tevfik Aysu, Yuzuncu Yil University,  
Van, Turkey  
[tevfikaysu@yyu.edu.tr](mailto:tevfikaysu@yyu.edu.tr)

#### Guest Editors

Oluwafunmilola Ola, Heriot-Watt  
University, Edinburgh, UK  
[o.ola@exeter.ac.uk](mailto:o.ola@exeter.ac.uk)

Shoucheng Du, University of  
Connecticut, Storrs, USA  
[shoucheng.du@engr.uconn.edu](mailto:shoucheng.du@engr.uconn.edu)

Sundaravadielvathan Ponnusamy, New  
Mexico State University, Las Cruces,  
USA  
[svnsundar@gmail.com](mailto:svnsundar@gmail.com)

#### Manuscript Due

Friday, 31 March 2017

#### First Round of Reviews

Friday, 23 June 2017

#### Publication Date

Friday, 18 August 2017