

Technical Talk on "Repurposing of Crop-Waste"

Organised by the Engineering Education Technical Division, IEM in collaboration with
Engineers Australia Malaysia Chapter (EAMC) and Institute of Mechanical Engineers Malaysia Branch (IMechE)
BEM Approved CPD/PDP: 2 Refs: IEM19/HQ/492/T

Date : 29th October 2019, Tuesday
Time : 5.30 pm – 7.30 pm
Venue : Auditorium Tan Sri Prof. Chin Fung Kee
Third Floor, Wisma IEM, Petaling Jaya, Selangor
Speaker : Professor Amanda Ellis

SYNOPSIS

This talk will highlight some of the practical uses of crop-waste. The talk will open with an overview of crop-waste issues in Australia then focus on crop-wastes from soya beans, palm fronds, and bamboo, amongst others. In particular the isolation and use of nanocellulose from these materials provides an important commodity. Nanocelluloses consists of nano-sized particles, ranging in size from 5-70 nm in diameter, including cellulose nanocrystals (CNC) and cellulose nanofibers (CNF), which range in average length from 100-250 nm or up to several micrometres, respectively. It is a biodegradable material and has been shown to possess negligible cytotoxicity. The talk will present research on the isolation of nanocellulose and its use in polyurethane hydrogels, and membranes. Analysis of the materials will highlight attenuated total reflectance - infrared Fourier transform spectroscopy, scanning electron microscopy, thermal gravimetric analysis, X-ray diffraction and compression mechanical tests as useful techniques. Finally, there will be a discussion on the use of waste materials from grape vine prunnings and bamboo as a composite material in particle board for the construction industry.

SPEAKER BIODATA



Amanda Ellis is the Head of Department for Chemical Engineering at the University of Melbourne, Australia. She graduated with a Ph.D (Applied Chemistry) from the University of Technology, Sydney in 2003. After two postdocs in the USA, including Rensselaer Polytechnic Institute and New Mexico State University she secured a prestigious Foundation of Research Science and Technology Postdoctoral Research Fellowship at Industrial Research Ltd, NZ (now Callaghan Innovations).

In 2006 Amanda commenced at Flinders University, South Australia as a teaching/research academic in Chemical and Physical Sciences. During this time, she became a full professor (2013), an ARC Future Fellow (2014) and acting Associate Dean of Research for the Faculty of Science and Engineering (2016). In May 2017 she joined the Department of Chemical Engineering at the University of Melbourne. She has secured over \$20 M in funding from the ARC and non-ARC sources on projects as well as publishing over 145 peer-reviewed publications (>4300 citations) involving novel polymer coatings, membrane science, functionalised carbon nanotubes and graphene, microfluidics, genotyping and DNA nanotechnology. Currently, she is a Board member of the Royal Australia Chemical Institute (RACI) and an Australia Research Council College of Experts panel member.

Ir. Assoc. Prof. Dr. Mohamed Thariq
Chairman
Engineering Education Technical Division
Session 2019 / 2020

ANNOUNCEMENT TO NOTE

FEES

(Effective 1st October 2017)

Members

Registration Fee : NO CHARGE

Administrative Fee :

Online : RM15

Walk In : RM20

Non-Members

Registration Fee : RM50

Administrative Fee : RM20

- Limited seats are available on a "first come first served" basis (maximum 100 participants).
- **To secure your seat, kindly register online at www.myiem.org.my**

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