

## Facilitator Background



Dr. Mohammad Jawaid received his PhD in Polymer Composites from Universiti Sains Malaysia in 2011. His research area of interest: Hybrid Reinforced/Filled Polymer Composites, Advance Materials: Graphene/Nanoclay/Fire Retardant, Lignocellulosic Reinforced/Filled Polymer Composites. Modification and Treatment of Lignocellulosic Fibres and Solid Wood., Nano Composites and Nanocellulose fibres, Polymer blends. He actively involved in characterization of thermal properties of polymeric materials especially DMA since 2010.

### Tentative Program

- 8.30 Registration
- 9.30 Introduction and principle of DMA.
- 10-30 Morning Tea break
- 11.00 How to analyze DMA with examples
- 12.30 Lunch
- 2.00 Familiarize with machine, sample preparation, and
- 3.30 Demo of Analysis of samples
- 4.30 Distribution of Certificate and feedback from Partici-
- 5.00 Refreshment

Registration Fee  
RM 200/person

### Contact us for more info:

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UPM  
UNIVERSITI PUTRA MALAYSIA

Institute of Tropical Forestry and Forest Products (INTROP)  
UNIVERSITI PUTRA MALAYSIA

## WORKSHOP ON DYNAMIC MECHANICAL ANALYSIS (DMA)

11 March 2015

9.00 a.m - 5.00 p.m

Meeting Room, INTROP,  
UPM



Facilitator:

Dr. Mohammad Jawaid  
Fellow Researcher, INTROP

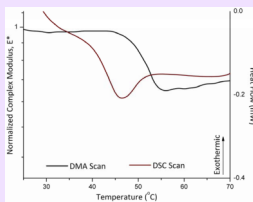
Organized by: Laboratory of Biocomposite Technology, INTROP, UPM

Tel: 03 8946 7008



# Background

**DMA** is a technique used to study and characterize materials. It is most useful for studying the visco-elastic behavior of polymers. A sinusoidal stress is applied and the strain in the material is measured, allowing one to determine the complex modulus. The temperature of the



sample or the frequency of the stress are often varied, leading to variations in the complex modulus; this approach can be used to locate

the glass transition temperature of the material, as well as to identify transitions corresponding to other molecular motions.

Workshop on **DMA** is to provide experience and knowledge about the characterization of DMA especially on its importance and value in characterization of polymers, biocomposites, natural fibre reinforced polymeric materials, Etc. for researchers (Student and Staff). This workshop will be delivered in two sessions, the 1<sup>st</sup> session will cover theoretical aspects of **DMA**-how to use it and what values and possible data output from it and how to analyze the value obtained. 2<sup>nd</sup> session will cover practical demonstration of **DMA** machine and software utilized for characterization of samples. It will also cover sample preparation, dimension and live demonstration of sample analysis. This



workshop is essential to expand and strengthen knowledge of **DMA**, which is one of the most powerful tools to study behaviour of polymeric materials and it allows for quick and easy determination of material properties.

## Objectives

This workshop will cover:

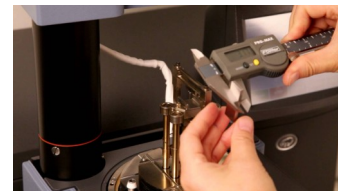
- Mechanical properties-Modulus
- Damping
- Material Effects
- Different Measurement Modes
- Measurement Possibilities
- Industries and their applications
- When to use DMA?
- Examples
- Summary
- Why not just use DSC?

Sample preparation:

- Introduction
- Shear
- Tension
- Bending
- Compression
- Temperature adjustment
- Summary

DMA-Applications:

- Measurement Possibilities
- Industrial and Applications
- Application examples
- Summary



## Registration Form

List Name for workshop:                      Fee/person    Total Price

Name:    RM 200    \_\_\_\_\_

Name:    RM 200    \_\_\_\_\_

Name:    RM 200    \_\_\_\_\_

Name:    RM 200    \_\_\_\_\_

Total: \_\_\_\_\_

Address \_\_\_\_\_

Email Address \_\_\_\_\_

Phone \_\_\_\_\_

Method of Payment

- Check
- Cash
- Inter-PTJ (Jurnal)                      Vote No. : \_\_\_\_\_

Notes:

*Bank drafts or cheques (LOCAL only):*

*Must be made payable to BENDAHARI UPM.*

Signature \_\_\_\_\_

## Secretariat of Workshop on DMA

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