

*"Integration of Knowledge for Advanced Research Output."*

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**CENTER OF POLYMER COMPOSITES RESEARCH AND TECHNOLOGY (PoCResT)**

<https://ios.uitm.edu.my/pocrest/>

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Researcher using state of the art Shimadzu AG-X Series



Thermal analysis using latest Netzsch TGA and DSC

**Collaboration and join research related to polymer composites research area are most welcome. Feel free to contact PoCResT personnel for further discussion.**



**INSTITUTE OF SCIENCE**  
**UNIVERSITI TEKNOLOGI MARA (UiTM),**  
**SHAH ALAM, SELANGOR,**  
**MALAYSIA**



## An Introduction

**Center of Polymer Composites Research and Technology (PoCResT)** in Institute of Science is established to be a base for researches that will have an impact to the academic and industrial practices and productivity through the understanding and application of fundamental and advanced polymer composites technology. Supported by a comprehensive research laboratory (**Polymer Composites Research Laboratory – PoCRe**), researches under this center are focusing on the development of innovative polymer composites materials (thermosets, thermoplastics and rubber) which include the usage of functional fillers (bio-based and synthetic), advanced mechanical and physical testing and analysis, thermal and dynamic studies, and the studies on the innovative polymer composites fabrications and testing.

The members and associate members of this center are from various research backgrounds such as applied sciences and engineering. As to maintain the standard of researches to be accepted by the industries, few associate members were appointed from various private sectors. The center has dedicated external professors as academic advisors for the academic courses run by the center.

Until today, the center has produced many post-graduate students by research at MSc. and PhD. levels. On top of that, the center has many collaborative works and provides continuous testing services to researchers from within the university and also to the outsiders. With proper planning and support, the center aims to be one of the leading reference centers in the field of polymer composites in this country.



*Extensive composites fatigue test using Shimadzu Servopulser*

## Equipments & Facilities

### Testing and analysis

- Tensile, 3-point bending and compression testing machine — SHIMADZU AG-X Series 50kN (tensile) and 20kN capacity — x-y strain gauge (Poisson's ratio determination)
- Hydraulic fatigue/ dynamic testing machine with hydraulic wedge grip and compression ability — SHIMADZU SERVOPULSER 50kN Dynamic and 75kN Static
- Moisture balance analyzer
- Thermal conductivity machine (TeDCaS) — RT up to 150°C with heater power variable
- Solid electronic density measurement
- Dart drop weight impact testing machine — INSTRON Dynatup® 9200HV capable of doing up to 70km/h of impact speed with variable tub
- Thermal gravimetry analyzer (TGA) — Netzsch (RT to 1000°C)
- Differential scanning calorimetry (DSC) — Netzsch (-150°C to 600°C)
- Metallurgical microscope — Olympus
- Mini-Scanning Electron Microscope — FEI Phenom (up to 20 000 times magnifications and with 'charge' reduction holder)

Check out other facilities at:

<https://ios.uitm.edu.my/pocrest/index.php/facilities>

## Concentrated Research Area

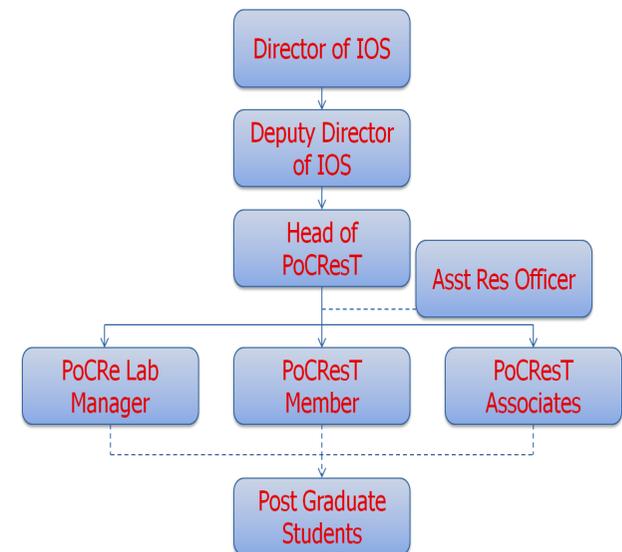
**POLYMER MATRIX IMPROVEMENTS AND MODIFICATIONS**

**POLYMER COMPOSITE AS IMPLANT MATERIALS**

**HYBRID REINFORCED POLYMER COMPOSITE SYSTEM**

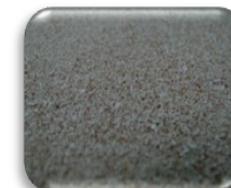
**BIO-BASED FILLED POLYMER COMPOSITES**

## Our Organization



## Area of Interest

- Polymer composites fabrication process
- Polymer composites mechanical testing
- Polymer composites characterization
- Polymer matrix modification
- Thermoplastic blends
- Thermoplastic elastomers
- Natural fiber/ filler polymer composites
- Elastomers/ rubber composites
- Polymer nano-composites
- Polymer composites failure analysis



*Chicken Eggshell micro granules used as fillers in polymer composites*