Investigation of hybrid effect of CNT and nanoclay in tailoring mechanical and electromechanical properties of epoxy based nanocomposites

Objectives
- Developing a ternary multifunctional epoxy nanocomposite using CNT and nanoclay to achieve superior mechanical properties in terms of tensile strength, fracture toughness and energy absorption along with appropriate electrical conductivity and piezoresistivity
- Developing a smart material capable of real-time monitoring of the strain and damage initiation in the systems for structural Health Monitoring applications
- Crack bridging and crack deflection
- A novel method in enhancing CNTs dispersion using nanoclay was introduced
- Mechanical properties improved by addition of nanoclay into CNTs doped epoxy without sacrificing electrical and electromechanical properties
- Highly added-value product with cost effectiveness in phase 2 was produced compared to the expensive and low quality composites in phase 1
- Excellent sensitivity in tensile and fracture tests
- Hybrid states showed better performance in terms of mechanical and electromechanical properties

References