



OBJECTIVES:

The objectives of the centre are to promote high quality research in advanced materials involving multi-disciplinary research and development among physicists, chemists, mechanical engineers, aeronautical engineers, electrical and electronics engineers and others.

The research to be conducted in the centre ranges from fundamental materials to applied material and includes the development, evaluation, application, and understanding of them specifically polymers, biomaterials, nanomaterials, electronic materials, composites, etc.

The members of the faculty and the research scholars are to involve in all aspects of research, from modeling to processing the materials in the centre itself or in collaboration with other research centres in India and abroad. The centre is having a well equipped laboratory on material processing, metallurgy and material testing.

The centre also has to organize Conferences/Seminars/Workshops/Short Courses in this area and to provide consultancy related to processing, testing and analysis in the field of material science and technology.

STEERING COMMITTEE:

The members of the steering committee are responsible to address all technical, managerial and financial issues relating to the development of the centre. The external members of the Steering Committee are nominated based on their expertise, experience, interest and willingness. This Steering Committee shall also function as a Peer Review Committee for all its activities. The composition of Steering Committee shall be:

SI No	Name & Address	Title
1.	Dr. M. Sivapragash, Director (Research), Prof. of Mech. Engg., NICHE	Director
2.	Dr. M.Sankaranarayanan Pillai, Prof. & Dean, School of Science and Humanities, NICHE	Member
3.	Dr.S.Balamurugan, Professor, Dept. of Nano Technology, NICHE	Member
4.	Dr. UTS.Pillai, Senior Principal Scientist, NIIST (CSIR), Trivandrum	Expert Member
5.	Dr. TPD. Rajan, Scientist, NIIST (CSIR), Trivandrum	Expert Member

RESEARCH INVESTIGATORS

SI No	Name of the Investigator	Designation	Department
1.	Dr. M. Sivapragash	Professor	Mechanical Engg.
2.	Dr. Velraja	Professor	Physics
3.	Dr. M.Sankaranarayanan Pillai	Professor	Chemistry
4.	Dr.P.Venugopalan	Professor	Nano Technology
5.	Dr. J. Edwin Raja Dhas	Professor	Automobile Engg.
6.	Dr.M.Dev Anand	Professor	Mechanical Engg.
7.	Dr.B. Vijayalakshmi Amma	Professor	Chemistry
8.	Dr.S.Balamurugan	Associate Professor	Nano Technology
9.	Dr.Reena	Asst. Professor	Chemistry
10.	Dr. R.V.Suganthi	Asst. Professor	Physics
11.	Dr.R.Ganapathi Raman	Asst. Professor	Physics
12.	Dr.T.Suthan	Asst. Professor	Physics

RESEARCH PROJECTS

Sl. No.	Title of the Project	Funding Agency	Status
1.	Synthesis and Characterization of Nano-Sized Graphene and Graphite With Magnetic Edge-State	DST	On-Going
2.	Simple and efficient way of fabricating oxide nano-structured materials through molten flux technique	DST	On-Going
3.	Production of hydrophobic nano silica from rice husk/ commercial grade precipitated silica for reinforcement of rocket insulation rubber and thermal protection of reusable launch vehicles	ISRO-RESPOND	On-Going
4.	Synthetic Methodology and detailed investigation of nano metalo – cuprates.	BRNS	On-Going
5.	Characterization of Zirconium Oxide and Zirconium Nitride Nano Coated AZ91D Magnesium Alloy by Physical Vapour Deposition Method	DRDO	On-Going
6.	Modeling and Analyzing of Weld Properties	NICHE	On-Going
7.	Delamination Studies of FRP Composites	NICHE	On-Going
8.	Fatigue & Fracture Studies of FRP Composites	NICHE	On-Going
9.	Development and Characterization of Nano Powder added Natural Fiber Reinforced Polymer Composites	NICHE	On-Going
10.	Processing and Characterization of Nano Composite Materials	NICHE	On-Going
11.	Friction Stir Welding of Mg Alloy	NICHE	On-Going
12.	Nanostructured Materials / Composites various Application	NICHE	On-Going
13.	Development and Investigation of Some Mechanical Properties of Magnesium MMC by Powder Metallurgy Route	NICHE	On-Going
14.	Modeling and Analysis of Dissimilar Friction Stir weld Properties	NICHE	On-Going
15.	Development in the Parameters Control of Electro Chemical Machining (ECM) Process Using Hybrid Intelligent Tool	NICHE	On-Going
16.	Finite Element based Failure Solution for Static Equipments and Piping Systems in Oil, Gas, Nuclear and power Sector	NICHE	On-Going
17.	Experimental and Analytical Investigation of Wear Properties of Surface Treated Magnesium MMC	NICHE	On-Going
18.	Development and Characterization of Novel Magnesium Nano Composite using Powder Metallurgy	NICHE	On-Going
19.	Studies on Nano-materials Based on Cadmium and Manganese Compounds	NICHE	On-Going
20.	Modelling and Simulation of Process Parameters of Hybrid Mechanical Type Advanced Machining Processes using Intelligent Techniques	NICHE	On-Going
21.	Process Parameter Optimization of EDM	NICHE	On-Going

FACILITIES AVAILABLE

(a) Material Processing Lab:

- (1) Hydraulic Press (150 Tonnes)
- (2) Hot Extrusion
- (3) Ball Mill
- (4) Vacuum Furnace
- (5) Muffle Furnace
- (6) Hot Oven

(b) Metallurgy Lab:

- (1) Atomic Force Microscope
- (2) Optical Microscope
- (3) Disc Polish Machine
- (4) Particle Analyzer

(c) Material Testing Lab:

- (1) Computerized Tensile & Compression Testing Machine
- (2) Impact Testing Machine
- (3) Rotary Bending Machine
- (4) Hardness Testing Machine
- (5) Corrosion Testing Machine
- (6) Surface Roughness Measurement
- (7) Vibration Testing Machine

(d) Spectroscopy Lab

- (1) IR
- (2) Raman
- (3) UV-Visible spectrophotometer
- (4) TGA /DSC

EVENTS

Sl.No	Name of the Event	Date	Organized By
1.	National Conference on Physics of New Materials	April 20-21,2012	Dept. of Physics