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Kuthambakkam, Chennai – 600124

CENTRE FOR ADVANCED MATERIALS RESEARCH

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CENTRE FOR ADVANCED MATERIALS RESEARCH (CAMR)

About the Centre

The materials research laboratory was started in the year of May 2018, by keeping in the view of solving the material related problems and to ensure the constant weed to innovative aspirants in the field of composite and allied research activities. Also, CAMR has evolved in a sizeable research unit with state-of-the-art equipment and diverse expertise of the team members ranging from synthetic and crystal chemistry, composite materials, functional materials, surface science, theoretical and computational chemistry etc. The joint efforts of the team members resulted in some exciting discoveries and developments.

Objectives of the Centre

- To promote and integrate interdisciplinary research among faculty and students in the field of materials science and of manufacturing engineering.
- To develop, Synthesize and characterize novel bio materials in the field of materials science and engineering for various applications.
- To develop expertise and key cutting edge technologies and transfer futuristic Technologies to industries to meet the future demands.
- To conduct and organize various Technical seminars/workshops in the field of materials science and engineering.

Facilities Available

- Magnetic stirrer with hot plate
- Remi clinical centrifuge
- Autoclave
- Muffle furnace

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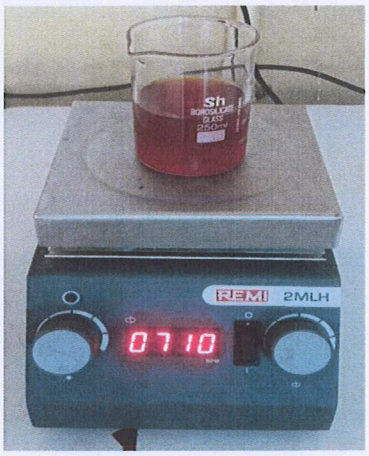
Muffle furnace



Magnetic stirrer

The above facilities are used to synthesize LED materials, Crystal materials and nano materials, polymers and natural fiber composites.

Faculty Members

S.No.	Name of the Faculty	Specialization
1.	Dr.G.Suresh (Centre Incharge)	Composite materials, conductive polymers
2.	Dr. Dr.K.Juliet Sheela (Centre Incharge)	Single Crystal EPR spectroscopy
3.	Dr.V.Natarajan	Organic crystals
4.	Dr.V.Hariharan	Nano composites
5.	Dr.D.V.Sridevi	Investigation on transition metal chalcogenides semiconductor materials.
6.	Dr.M.Jeyachandran	Luminescence
7.	Dr.Harikumar	Corrosion

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S.No.	Name of the Faculty	Specialization
8.	Dr.Chitradevi	Waste water treatment
9.	Dr.B. Balanagakarthik	Corrosion
10.	Dr.M.Bakkiyaraj	Metal joining and additive manufacturing
11.	D.G.Saikrishnan	Friction materials for brake pad applications
12.	Dr.G.Radhika	Energy storage devices
13.	Dr.P.A.Thenmozhi	Bio sensor applications
14.	Dr.A.Swetha	Nano bio materials for bio medical applications
15.	Dr.S.Saravanan	Nonlinear dynamics
16.	Dr.D.Devi Priya	Hetro cyclic chemistry
17.	Mr.S.Bharanikumar	Aluminum metal matrix composites
18.	Ms.S.Priyadarshini	Natural fibers and composites

Enrolled Students list

S. No.	Roll No.	Name of the Student
1.	201904008	HARI KRISHNAN M
2.	201904009	HARIHARAN G
3.	201904014	MADHAN A
4.	201904015	MADHAVAN M
5.	201904016	MANOJ KUMAR U
6.	201904017	MEGANATHAN S
7.	201904028	THAMEEZUDEEN T
8.	201904034	ABDUL AZEEZ. T

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Publication Details

37 articles have been published in reputed Journals.

Featured Journal Publication Details

Name of Faculty	Title	Name of the Journal	Impact Factor	SCI
Dr.G.Radhika	High -performance asymmetric supercapacitor fabricated with a novel MoS2/Fe2O3/Graphene composite electrode	Colloid and interface science communication	4.914	SCI
Dr.G.Radhika	One-Pot synthesis of CuO-Cu2O nanoscrubbers for high-performance pseudo-super capacitors applications	Materials science and Engineering B	4.051	SCI
Dr.M.Bakkiyaraj	Influence of process parameters on tensile strength of the friction welded AA6063-T6 joints by Box-Behnken design approach	Advances in Materials Science and Engineering	1.726	SCI

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Name of Faculty	Title	Name of the Journal	Impact Factor	SCI
Dr.M.Bakkiyaraj	Harnessing Friction Stir Back Extrusion process to fabricate microtubes from as-cast Mg–4Zn–0.7Zr-1.6RE magnesium alloy'	Surface topography metrology and Properties	2.038	SCI
Dr.M.Bakkiyaraj	Influence of Heat Input on Cold Metal Transfer Welded Joints	Materials and Manufacturing Processes	4.616	SCI
Dr.M.Bakkiyaraj	Effect of friction time on tensile strength and metallurgical properties of friction welded dissimilar aluminium alloys joint	Materials Testing	1.562	SCI
Dr.M.Bakkiyaraj	Effect of FW conditions on mechanical and microstructural characteristic of AA6061/SiC/Graphite hybrid composites joint by empirical relationship	Surface topography metrology and Properties	2.038	SCI

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Name of Faculty	Title	Name of the Journal	Impact Factor	SCI
Dr.M.Bakkiyaraj	Corrosion resistance and metallurgical behaviour of CMT welded Al-LCS dissimilar butt joint exposed in simulated industrial environment	Part C - Journal of Mechancial Engineering Science	1.762	SCI
Dr.M.Bakkiyaraj	Corrosion Behavior and Analysis on Friction Stir Welded Aluminium Matrix Composites	Surface topography metrology and Properties	2.038	SCI
Dr.G.Sai Krishnan	Investigation on the mechanical properties of ramie/kenaf fibers under various parameters using GRA and TOPSIS methods	Polymer Composites	3.171	SCI
Dr.G.Sai Krishnan	The influence of different parameters in tribological characteristics of pineapple/sisal/TiO2 filler incorporation	Journal of Industrial Textiles	3.654	SCI

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Name of Faculty	Title	Name of the Journal	Impact Factor	SCI
Dr.G.Sai Krishnan	Investigation of ferronickel slag powder for marine applications by using MIP method	Materials Research Express	1.618	SCI
Dr.S.Chitradevi	Study of numerous resins used in polymer matrix composite materials	Advances in materials science and engineering	1.726	SCI
Dr.D.V.Sridevi	"Synthesis, growth, structural, physicochemical, linear and nonlinear optical properties of new hybrid [2(C10H20O5) Ba] [Mn (SCN4)] single-crystal"	Applied Physics A	2.584	SCI
Dr.D.V.Sridevi	A facile synthesis of Mn-doped ZnSe nanoparticles for an enhanced photocatalytic activity and biological applications	Ceramics International Journal (First Author come Corresponding Author)	5.532	SCI

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Name of Faculty	Title	Name of the Journal	Impact Factor	SCI
Dr.G.Suresh	Influence of IPNS (Vinylester/Epoxy/Polyurethane) on the Mechanical properties of Glass/Carbon fiber reinforced Hybrid Composites	IIUM Engineering Journal	0.625	SCI
Dr.G.Suresh	Long term accelerated influence on thermo-mechanical properties of glass/carbon fiber reinforced interpenetrating polymer network hybrid composites	JOURNAL OF REINFORCED FIBERS AND COMPOSITES	3.71	SCI

Patents Details

S.No.	Title	Application Number	Status
1.	Design application details	325593-001	Published
2.	Solar Distillation Unit I	355584-01	Filed
3.	Full day automatic touchless mist sprays sanitizer dispenser	202041025219	Filed

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S.No.	Title	Application Number	Status
4.	Influence of IOT in microbial fuel cell for mass production of electricity	202141058303 A	Filed
5.	Anaerosol solgel generating system and a specifically designed nozzle	202041011548 A	Filed
6.	Low-cost IOT based soil monitoring and irrigation system for terrace gardening	202141032709	Filed

Details of Industry/Academic Mentors

S.No.	Industry/Academic Mentors	Name of the Industry/Institution	Expertise
1.	Mr. V.Sivasankaran, Senior Manager	TIDC murugappa	Composite materials
2.	Mr.A.Sakthivel, CEO	Accuro Auto Components Industries. AAC	Welding corrosion

Details of MoUs

S.No.	Name of the Industry	Date of MoU	Intend
1.	Accuro Auto Components Industries, Chennai.	07.01.2022	Knowledge sharing, Industrial visit, Consultancy works

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S.No.	Name of the Industry	Date of MoU	Intend
2.	AMMAN Tools, Chennai.	13.12.2021	Knowledge sharing, Industrial visit, Consultancy works

Details of Completed/Ongoing Projects

1. Establish correlation between link plate waist width and fatigue strength of chain

   Successfully completed the consultancy work from **Tripura Industrial Development Corporation (TIDC)** on the topic of "Establish correlation between link plate waist width and fatigue strength of chain. To understand the optimum waist width for superior fatigue strength. The value of consultancy is Rs.30,000.00

2. Establish correlation between interference, plate hole finish and push out forces

   Successfully completed the consultancy work from **TIDC** on the topic of "Establish correlation between interference, plate hole finish and push out forces". The value of consultancy is Rs.10,000.00

3. Understanding the effect of preloading at different loads and the effect of it on composite (FRP) chains

   The Centre received the consultancy project from **TIDC,** Chennai, on the topic of "Understanding the effect of preloading at different loads and the effect of it on composite (FRP) chains. To try and develop a correlation between load applied and fatigue in chains - PILOT STUDY I". The value of consultancy is Rs.10,000.00

4. Experimental Investigation of Nano Particle Loaded Composite Materials for Pipe Application

   A mixture of Epoxy (EP) and polyurethane (PU) prepolymer is going to be used in the field of pipe manufacturing as a matrix material (interpenetrating polymer networks) with E-glass fibre as reinforcement along with the incorporation of nano

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particles. In order to evaluate the mechanical strength of the fibre-reinforced EP-PU interpenetrating polymer network composite pipe, tests like hydrostatic, hoop, stiffness, and axial compression is planned to conduct systematically with five proportions of PU-loaded EP (0%, 10%, 20%, 30%, 40%, and 50%).

5. Nano Crystal - Synthesis

To synthesize new and NOVEL NLO crystals in the organic and semi organic category various set of solgel methods have been opted. As a part of the new innovation, formed the super saturated solution of the Para Tolune Sulphanamide with Isatin material and allowed to cool slowly and to grow good optical quality crystals. Apart from this as searching for the novel material, enhancement has been done with other combination of the organic molecule synthesis.

Events Conducted

- "Ideation on Non Traditional Machining Technology" conducted on 23rd May' 2022 from 01.30 P.M to 02.30 P.M.
- "Impact of Intellectual Property Rights in Engineering Industries" conducted on 12th & 13th April' 2022.
- "Research on Advanced Manufacturing Technologies and Materials for Space Exploration" conducted on 04th April' 2022 from 05.00 P.M to 06.00 P.M.

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