

Dr. Praveen A. S., Ph.D. (NIT-Trichy)
 Composite Research Lab
 Associate Professor/Mechanical Engineering



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Research Areas

Thermal spray coatings, Tribology, 3D printing of ceramics (Extrusion based)

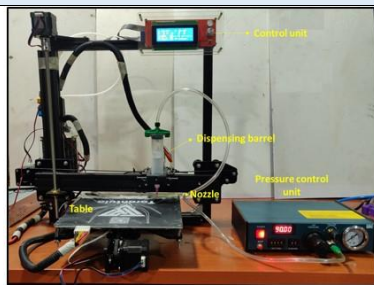
Projects & Publications Summary

Project		Publication Count		Citation Count			Impact Factor	
Completed	01	SCI	008	Citations	Google	SCOPUS	13.5	
Ongoing	01	SCOPUS	010		300	201		
Submitted	10	Books	000		h-index	08		06
		Books chapters	004		i10index	08		06

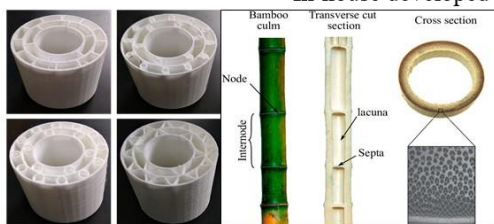
National/International Collaboration

- University of Wolverhampton, UK - DMLS of Ti6Al4V alloy and Ni-based thermal spray coatings
- University of Pretoria, South Africa - PCM based heat sink
- Indian Institute of Technology, Madras - Characterisation of 3D printed samples
- Visvesvaraya National Institute of Technology (VNIT Nagpur) - Development of thermal spray coatings

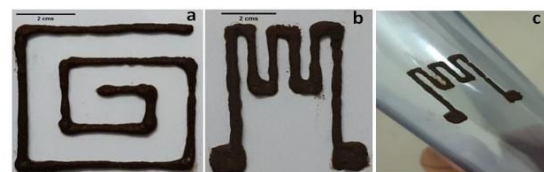
Research snippets



In-house developed 3D printer and printed structures



FDM printed structures inspired by bamboo tree



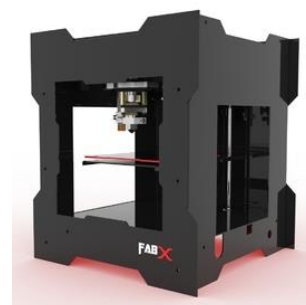
3D printed electronic circuits

Research facilities

- Extrusion based 3D printer
- FDM printer
- Tensile testing machine (20N)
- Box furnace (900 °C)
- Magnetic stirrer
- Mechanical stirrer
- Hot plate



Tensile testing machine (Shimadzu - 20N)



FDM printer (FAB-X)

Outline of Research Works

- Development of alumina/tricalcium phosphate structures using direct ink writing technique for biomedical applications.
- Development of bio-mimetic structures using fused deposition modeling.
- High temperature erosion and corrosion resistant Fe-based thermal spray coatings.
- Fused deposition modeling process parameter optimization of PLA/Al composite material.
- 3D printing of multiwalled carbon nanotube/polyvinyl alcohol composites for electronic circuit applications.

Details of Funded Projects

S.No	Project Title	Funding agency	Amount (Rs.)	Duration	Collaboration
1.	Additive manufacturing of osteogenic and infection resistant bone tissue engineering scaffolds	SERB-TARE	18,30,000/-	2022-2025 (Ongoing)	IIT-M
2.	Preparation and characterization of ceramic suspension for direct ink writing	VEL TECH SEED FUND	1,20,000/-	2017-18 (Completed)	-

Recent Best 5 SCI Publications

- **A. S. Praveen, A. Arjunan**, High-temperature oxidation and erosion of HVOF sprayed NiCrSiB/Al₂O₃ and NiCrSiB/WC-Co coatings, *Applied Surface Science Advances*, Vol. 7, February 2022, 100191.
- **T. Ramesh, A. S. Praveen, B. Praveen, Sachin Salunkhe**, Phase change material aided thermal scheming of high power LED: Effect of PCM with varying pitch of hexagonal fins, *Materials Research Innovations*, September 2021, pp. 1-10
- Syed Riyaz Ahammed, **A. S. Praveen**, Direct writing of electronic circuits using functionalised multi-walled carbon nanotubes and polyvinyl alcohol conductive ink, *Advances in Materials and Processing Technologies*, Vol. 10, (2021) 1-14.
- **A. S. Praveen, A. Arjunan**, Effect of nano-Al₂O₃ addition on the microstructure and erosion wear of HVOF sprayed NiCrSiB coatings, *Materials Research Express*, Vol 7, December 2019, 015006 - IF: 1.929
- **A. S. Praveen, A. Arjunan**, Parametric optimisation of high-velocity oxy-fuel nickel-chromium-silicon-boron and aluminium-oxide coating to improve erosion wear resistance, *Materials Research Express*, Vol. 6, July 2019, 096560 - IF-1.929

Book chapters

- **A. S. Praveen, A. Arjunan and A Baroutaji** “Coatings for dental application” Elsevier reference module in Materials Science and Materials Engineering 2021.
- A. Arjunan, A Baroutaji, J. Robinson, **A. S. Praveen**, A. Pollard and C. Wang “Future directions and requirements for tissue engineering biomaterials” Elsevier reference module in Materials Science and Materials Engineering 2020.
- A. Arjunan, A. Baroutaji, **A. S. Praveen**, J. Robinson and C. Wang, “Classification of Biomaterial Functionality” Reference Module in Materials Science and Materials Engineering 2020.
- A. Arjunan, A. Baroutaji, **A. S. Praveen**, A. G. Olabi and C. J. Wang “Acoustic Performance of Metallic Foams”, Elsevier reference module in Materials Science and Materials Engineering 2019.

Fellowships/Awards/Recognitions

- Recipient of “MHRD scholarship” for pursuing M.Tech degree - 2009.
- Recipient of “MHRD scholarship” for pursuing Ph.D. degree - 2012.
- Recipient of award of excellence certificate in the MEDIC 2017 at College of Engineering (CoE) - Pune organized by BETIC - IIT Bombay.

PhD Thesis Guidance

Scholar Name	Thesis Title	University	Status	Year
1. T. Ramesh	Heat dissipation study on PCM based LED heat sinks	Vel Tech, Avadi	Ongoing	2016
2. C. Sudhakar	Wear study of thermal spray coatings	Vel Tech, Avadi	Ongoing	2017
3. Syed Riyaz Ahammed	3D printing of multiwalled carbon nanotube/polyvinyl alcohol composites for electric circuit applications	Vel Tech, Avadi	Completed	2017
4. Belgin Paul D. L.	3D Printing of ceramics	Vel Tech, Avadi	Ongoing	2018
5. Tarek Al Musalli	Additive manufacturing of composite materials	Vel Tech, Avadi	Ongoing	2020

Editorial/Review Activities

- Ceramics International - Elsevier (SCI)
- Journal of the Mechanical Behavior of Biomedical Materials - Elsevier (SCI)
- Results in Engineering - Elsevier (SCI)
- Rapid Prototyping Journal - Emerald Insight (SCI)
- Materials Letters - Elsevier (SCI)
- Additive manufacturing - Elsevier (SCI)