Dr. N. Shanmuga Priya

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Education

	Degree	Year	Institute	Specialization
1	PhD	2016	Indian Institute of Technology, Guwahati	Mechanical-Thermal
2	PhD	2016	Indian Institute of Technology, Guwahati	Mechanical-Thermal
3	BE	2000	Institute of Road and Transport Technology, Erode, Tamil Nadu	Automobile Engineering

Professional Experience

	Date (from-to)	Designation	Organization
1	Jan 2011 to till date	Assistant Professor	Siddaganga Institute of Technology, Tumakuru
2	Sep 2009 - Jun 2011	Senior Lecturer	Siddaganga Institute of Technology, Tumakuru
3	Sep 2004 - Sep 2009	Lecturer	Siddaganga Institute of Technology, Tumakuru
4	Dec 2003 - Sep 2004	Lecturer	Kalinga Institute of Technology and Science, Bhubaneswar, Orrisa
5	June 2003 - Nov 2003	Lecturer	Hindustan college of Engineering, Chennai, Tamil nadu

(Please fill in reverse order. Current designation should be at the top)

Positions held

(Please give details of any administrative posts, co Ordinator roles/ responsibilities held)
Department research committee convener.
Laboratory and subject coordinator

Awards and Honors

- Award for Research Publications (ARP) - 2016 by Vision Group on Science and Technology (VGST), Department of Information Technology, Biotechnology and Science and Technology, Govt of Karnataka.
- GATE scholarship from the Ministry of Human Resource Development, Government of India
- UG Project Aid by Tamil Nadu State Council for Science and Technology, Tamil Nadu, India under Student Project Scheme

Courses Taught

Undergraduate Courses

- Basic Thermodynamics
- Applied Thermodynamics
- Theory of IC engines
- Automobile engineering
- Air conditioning and ventilation
- Refrigeration and Air conditioning
- Power plant engineering

Postgraduate Courses

- Advanced power plant cycles
- Engine flow and combustion
- Advanced Fluid Mechanics
- Thermodynamics and combustion

Research Guidance

Sl. no	Name of the Scholar	Title	Year of completion
1	Vineeth Kumar	Influence of MWCNT and Egg Shell Powder on Mechanical and Bio-Compatible Properties of PMMA Bone Cement for Orthopaedic Applications	2024

2	Priyanka	Synthesis and characterization of phase change material embedded with graphite and multi-walled carbon nanotubes	On going

Research Areas

- Nanoparticles synthesize and its characterization
- Phase change materials and their application to energy storage
- Polymer composite materials

Sponsored Projects

Completed Projects:

1. Title: Diminution of revision surgeries in cemented total hip replacement by PMMA/MWCNT Nanocomposites.
   Funding Agency: Vision group on Science and Technology (VGST). Department of Information Technology, Biotechnology and science and Technology, Govt of Karnataka (Seed Money to Young scientist for Research, SMYSR)
   Amount: Rs. 5 Lakh
   Duration: 1 year
   Role: Principal Investigator

Publications

Journals

[1] Priyanka and N. Shanmuga Priya, "Solar salt doped with Nano additive Expanded Graphite as a promising phase change material for thermal energy storage systems," *Jordan Journal of Mechanical and Industrial Engineering (JJMIE)*, vol. 19, no. 1, pp. 229–236, Mar. 2025, doi: 10.59038/jjmie/190118.

[2] Priyanka and N. Shanmuga Priya, "Advancements in Composite Phase Change Materials for Enhanced Thermal Energy Storage Applications," *Journal of Mines, Metals and Fuels*, vol. 73, no. 4, pp. 861–869, 2025, doi: 10.18311/jmmf/2025/47430.

[3] R. Saminathan, A. Y. A. Nashali, A. A. A. Haqawi, S. Marappan, and S. P. Natesan, "Role of artificial intelligence (AI) and machine learning (ML) in the corrosion monitoring processes," *Zastita Materijala*, vol. 65, no. 3, pp. 473–480, 2023.

[4] C. Mohan Raj, N. Shanmuga Vadivu, V. Pavithra, N. Suma, and N. Shanmuga Priya, "WiFi based location identification system using heart rate analysis," *Journal of Propulsion Technology*, vol. 44, no. 6, pp. 646–649, 2023.

[5] T. V. Vineeth Kumar, N. Shanmugapriya, and A. S. Madeva Nagaral, "Influence of MWCNTs on mechanical and in-vitro biocompatibility properties of PMMA bone cement for orthopaedic application," *Research on Engineering Structures and Materials*, pp. 1–16, 2023, doi: 10.17515/resm2023.639me0114.

[6] T. V. Vineeth Kumar, N. Shanmugapriya, A. S. Arun, and G. Ramasubramanian, "Analysis of the multiwalled carbon nanotubes reinforced poly-methyl methacrylate bone cement's characteristics and in vitro bioactivity to prolong its functionality in orthopedic application," *Advances in Polymer Technology*, vol. 2023, Article ID 8832582, pp. 1–11, 2023, doi: 10.1155/2023/8832582.

[7] P. S. Deshpande, Priyanka, R. Joythilakshmi, and N. Shanmuga Priya, "Advances in the study of phase change materials and Ne-PCMs for the storage of energy applications," *Journal of Mines, Metals and Fuels*, vol. 70, no. 8A, Aug. 2022, doi: 10.18311/jmmf/2022/31991.

[8] P. Pimenidou, N. Shanmugapriya, and N. Shah, "Performance and emissions study of diesel and waste biodiesel blends with nanosized CZA2 of high oxygen storage capacity," *Fuel*, vol. 239, pp. 1072–1082, 2019, doi: 10.1016/j.fuel.2018.11.036.

[9] M. Kumar, N. Shanmuga Priya, S. Kanagaraj, and G. Pugazhenthi, "Melt rheological investigation of PMMA nanocomposites reinforced with modified nanoclay," *Journal of Nanocomposites*, vol. 2, no. 3, pp. 109–116, 2016, doi: 10.1080/20550324.2016.1221876.

[10] N. Shanmugapriya, M. Balasubramaniam, C. Somayaji, and S. Kanagaraj, "Influence of surfactants and preparation techniques on stability of nanofluids," *Physics and Chemistry of Liquids*, under review.

[11] M. Girish Prasad, M. Ravitej, and N. Shanmugapriya, "Thermal analysis of aero gas turbine blade," in *Proc. 23rd IRF Int. Conf.*, Bengaluru, India, May 2016, pp. 1–4.

[12] N. Shanmugapriya, C. Somayaji, and S. Kanagaraj, "Synthesis and characterization of Nd3+ doped Ce0.6Zr0.4O2 and its doping significance on oxygen storage capacity," *Rare Metals*, 2016, doi: 10.1007/s12598-016-0698-3.

[13] N. Shanmugapriya, C. Somayaji, and S. Kanagaraj, "Characterization and optimization of Ce0.6Zr0.4−xMnxO2 (x ≤ 0.4)," *Journal of Nanoparticle Research*, vol. 16, no. 2660, pp. 1–10, 2014.

[14] N. Shanmugapriya, C. Somayaji, and S. Kanagaraj, "Optimization of Ce0.6Zr0.4−xAl1.3xO2 solid solution based on oxygen storage capacity," *Journal of Nanoparticle Research*, vol. 16, pp. 21–30, 2014.

Conference Proceedings

[1] Priyanka and N. Shanmuga Priya, "Effect of expanded graphite on nitrate based phase change materials being used in thermal energy storage systems," in *IOP Conf. Series: Earth and Environmental Science*, vol. 795, 2021, doi: 10.1088/1755-1315/795/1/012010.

[2] N. Shanmugapriya, C. Somayaji, and S. Kanagaraj, "Optimization of ceria-zirconia solid solution based on OSC measurement by cyclic heating process," *Procedia Engineering*, vol. 64, pp. 1235–1241, 2013.

[3] N. Shanmugapriya, C. Somayaji, and S. Kanagaraj, "Oxygen storage capacity of CexZr1−xO2 (0.4 ≤ x ≤ 0.8) solid solution using thermogravimetric analysis," *Advanced Materials Research*, vol. 747, pp. 579–582, 2013.

Book Chapters

1. Kelly, R. Davidson, K. Uchino, N. ShanmugaPriya, and M. Shanmugasundaram, "Smart composite materials systems," in *Testing, Nondestructive Evaluation and Structural Health Monitoring*, vol. 7–8, Elsevier Inc., 2018, pp. 358–363, doi: 10.1016/B978-0-12-803581-8.10298-X.
2. J. Jortner and N. S. Priya, "Applications of carbon/carbon composites," in *Comprehensive Composite Materials II*, vol. 5–8, 2018, pp. 421–436.
3. N. Shanmugapriya and S. Kanagaraj, "Applications of nanofluids in automobile systems," in *Nanofluids Heat and Mass Transfer in Engineering Problems*, M. Sheikholeslami, Ed., IntechOpen, under review.
4. N. Shanmuga Priya, M. Shanmuga Sundaram, and Priyanka, "Failure models of composite structure under impact loading," in *Failure of Fiber-Reinforced Polymer Composites*, R. M. Rajesh, Ed., CRC Press/Taylor & Francis Group, 2021.
5. T. V. Vineeth Kumar, N. Shanmuga Priya, and S. Arun, "Damage to polymer matrix in transport applications," in *Failure of Fiber-Reinforced Polymer Composites*, R. M. Rajesh, Ed., CRC Press/Taylor & Francis Group, 2021.

Patents

1 P. Muthukumar, GyanSagarSinha, Lav Kumar Kaushik, Monikankana Sharma, S. Kanagaraj, N. ShanmugaPriya. Self-Aspirated Pressurized Kerosene Cooking Stove with a Porous Radiant Burner with Nanoparticles blended. Indian Patent Application No. 201831003156 date of filling 27-01-2018. Patent no: 497095. Granted on 10-01-2024

2 Ramasamy S G, Jabakumar A K, Shanmuga Priya N, Shanmuga Vadivu N, Pavithra M, Sivasankaran V, Priyadharsan M R T, S. Devaraju S, Kumar R K,

Aparna N. INTELLIGENT RESTAURANT USING SMART BEACONS. Indian Patent Application No.202241041246 A. Filled on: :19/07/2022 and published on : 29/07/2022

3 N. Shanmugapriya, V. Satheeshkumar, K. Rajaguru and S. Arun, Polymeric nanocomposite based integrated prosthetic foot made by Injection molding process. Indian Patent application no.464/KOL/2015, dated on 27/04/2015.

Invited Lectures, talks and workshops

1 Invited talk on “Synthesis and characterization of high Oxygen Storage Capacity nanoparticles dispersed Diesel”, 29th July 2019. Renewable Energy and Waste Management Techniques- an approach towards sustainable development (22nd July – 3rd Aug 2019), AICTE funded Faculty development program conducted at Ramaiah Institute of technology. Bangalore, India.

2 Invited talk on “Emission reduction and performance enhancement of high Oxygen Storage Capacity nanoparticles dispersed Diesel and waste biodiesel”.29th July 2019. Renewable Energy and Waste Management Techniques- an approach towards sustainable development (22nd July – 3rd Aug 2019), AICTE funded Faculty development program conducted at Ramaiah Institute of technology. Bangalore, India.