

Faculty Profile



Dr. P. RAJA, M. Tech., Ph.D.
Assistant Professor- Mechanical Engineering

HIGHLIGHTS:

- Number of Journal Publications: 4
- H-Index: 2
- Project Funding Received: 0
- Patents Published: 0
- Patents Granted: 0

PROFESSIONAL LINKS:

- Google Scholar ID: [Raja P - Google Scholar](#)
- ResearchGate ID: [Raja Petchiappan](#)
- Orcid ID: <https://orcid.org/0000-0001-8959-4543>
- LinkedIn: www.linkedin.com/in/dr-raja-p-5a107066

PROFESSIONAL BACKGROUND:

- Teaching Experience till date: 0
- Industrial Experience: 0
- Research Experience: 2

INTERNATIONAL EXPOSURE:

- R. Petchiappan et al., “Effects of solid lubricants (Graphite, MoS₂, and Sb₂S₃) of Cu/SiC hybrid composite brake materials on tribological properties for medium duty applications,” **ECOTRIB 2017 - 6th European Conference on Tribology**, June 7-9, 2017, Slovenia, ITALY.
- Petchiappan Raja, Penchaliah Ramkumar, “Effect of Ceramic Reinforcement Particle on Mechanical and Tribological Properties of Sintered Copper-Based Brake Composite

Friction Materials using Pin-on-Disc Tribometer,” **MYTRIBOSymposium 2023 - 5th International Malaysian Tribology Symposium**, 24 August 2023, Universiti Putra Malaysia, Malaysia.

AREA OF SPECIALIZATION:

- ❖ Brake Friction Material
- ❖ Composite Material
- ❖ Manufacturing Processes
- ❖ Optimization Techniques
- ❖ Tribology

CONSULTANCY PROJECT:

- Worked as a “**Project Associate**” under the principal investigator **Prof. P. Ramkumar**, IIT Madras, in the projects of “*Sliding wear performance of excavator bucket materials-Phase III*”, Caterpillar Project, Chennai, and “*Brake pad life improvement of disc brake system*”, Royal Enfield, Chennai.

ACHIEVEMENTS AND AWARDS:

- Received “**BEST PAPER AWARD**” for excellence in oral presentation at the International Conference on Advances in Design, Materials, Manufacturing and Surface Engineering for Mobility (*ADMMS'23*), which is organized by *SAEINDIA*, Society of Automotive Engineers INDIA as a part of **SAE INTERNATIONAL** on 27-28th October 2023 held at Department of Automobile Engineering, SRM University, Chennai.
- The *SAE International Journal of Advances and Current Practices in Mobility* publication features the best papers from SAE events and has chosen my peer-reviewed “**Technical Paper of ADMMS'23**” to be included in its 2024 edition as SAE’s journal honoring the very best paper for the events.
- Received “**BEST POSTER AWARD, 1st Prize**” for the poster presentation at MDS Research Scholars Poster Presentation Day 2018, conducted on 3rd April 2018 by the Machine Design Section, Department of Mechanical Engineering, IIT Madras, Chennai.
- Promoted as a “**Project Associate**” in the Department of Mechanical Engineering, Office of Industrial Consultancy and Sponsored Research, IIT Madras, June 2023-24.
- International Travel Grant of **Rs. 1 50 000/-** for presenting/attending the ECOTRIB 2017- 6th European Conference on *Tribology*, June 2017, Ljubljana, Slovenia, Italy by Institute Financial Assistance, the Department of Higher Education, Ministry of Higher Education (MHRD), Government of India.
- Joined as “Half Time Research Assistantship (**HTRA**)” by the Ministry of Higher Education (MHRD), Government of India, to pursue a Ph.D. in the Department of Mechanical Engineering at IIT Madras.

- Joined as “Half Time Teaching Assistantship (**HTTA**)” by the Ministry of Higher Education (MHRD), Government of India, for Master of Technology (M. Tech) in Mechanical Engineering at IIT Roorkee.
- Secured **All India Rank 616** in GATE 2011.

CONFERENCES/SEMINARS/WORKSHOPS ATTENDED:

- Raja P & Ramkumar P, “Development of Sintered Copper-Based Brake Composite Friction Material for Medium-Duty Automotive Application,” **AIRSS’25** – *All India Research Scholars Summit 2025*, 27-30 March 2025, Indian Institute of Technology Madras, Chennai, INDIA.
- Petchiappan Raja, Penchaliah Ramkumar, “Effect of Soft Reinforcement Particles on Microstructural, Mechanical and Tribological Properties of Sintered Copper Based Brake Composite Friction Material,” **ADMMS’23** - *International Conference on Advances in Design, Materials, Manufacturing, and Surface Engineering for Mobility*, 27-28 October 2023, Department of Automobile Engineering, SRM Institute of Science and Technology, Chennai, INDIA.
- Raja P, Ramkumar P, “Tribological effect of MoS₂ composition on sintered copper brake composite friction material,” **IndiaTrib 2022** – *11th International Conference on Industrial Tribology*, Dec 12-14, 2022, Indian Institute of Technology Delhi, New Delhi, INDIA.
- Raja P, Ramkumar P, “Tribological effect of type and relative amount of hard reinforcement particles on sintered copper brake composite materials,” **IndiaTrib 2022** – *11th International Conference on Industrial Tribology*, Dec 12-14, 2022, IIT Delhi, New Delhi, INDIA.
- Raja P, P. Ramkumar, “Tribological effect of reinforcement compositions on sintered copper-based brake friction material for medium duty automotive applications,” **ITRS 2020** – *International Tribology Research Symposium*, Nov 5-7, 2020, SRM Institute of Science and Technology, Chennai.
- Raja P, P. Ramkumar, “Effect of conventional sintering on the mechanical properties of copper-based brake friction material,” **IndiaTrib 2019** - *10th International Conference on Industrial Tribology*, Dec 1-4, 2019, Indian Institute of Science, IISc Bangalore, INDIA.
- Raja P, P. Ramkumar, “Tribological behaviour of Titanium Carbide (TiC) on sintered copper-based brake composite friction material,” **IndiaTrib 2019** – *10th International Conference on Industrial Tribology*, Dec 1-4, 2019, Indian Institute of Science, IISc Bangalore, INDIA.
- Petchiappan Raja, “Tribological effects of Multiwall Carbon Nanotube (MWCNT) on Cu based hybrid composite brake friction material for medium duty applications,” **ADMMS’18** -*International Conference on Advances in Design, Materials, Manufacturing, and Surface Engineering for Mobility*, July 20-21, 2018, Department of Automobile Engineering, Madras Institute of Technology, Chennai.

- P. Raja, P. Ramkumar, “Study the effects of solid lubricant (Graphite) on tribological properties of Cu/SiC hybrid composite brake friction material for medium duty applications,” **ICIT 2017** - 9th *International Conference on Industrial Tribology*, Dec 6-9, 2017, Kolkata, INDIA.
- P.Raja, P.Ramkumar, “Study the effects of Multiwall Carbon Nanotube (MWCNT) on tribological properties of Cu/SiC hybrid composite brake friction material for medium duty applications,” **AMPCO 2017** - *International Conference on Advances in Materials & Processing: Challenges & Opportunities*, Nov 30-Dec 2, 2017, IIT Roorkee, Roorkee, INDIA.
- Raja P et al., “Effect of sintering process on mechanical properties and microstructure of Cu/SiC hybrid composite brake friction material,” **ICMTS 2017** - *International Conference on Manufacturing Technology and Simulation*, July 7-8, 2017, IIT Madras, Chennai.
- Raja Petchiappan, Ramkumar P, “Factors Influencing Tribological Properties of Sintered Copper-Based Brake Composite Friction Material using Response Surface Methodology,” **ICFP’25**- 4th *International Conference on Friction Based Processes 2025*, 6- 8th September 2025, Indian Institute of Technology Tirupati, INDIA.
- Professional Short-Term Certificate Course in CAD using CATIA conducted by AU-FRG Institute for CAD/CAM, Anna University, Chennai.
- Participated in the International Conference on Advances in Industrial Engineering Applications (ICAIEA), January 6-8, 2010, Anna University, Chennai.
- Participated in an Educational course on the Basics of Tribology, Tribology Society of India (TSI), December 6-9, 2017, 9th International Conference on Industrial Tribology (ICIT 2017), Kolkata.
- Participated in a Day National Level Workshop on “Friction Material Concepts-Formulation, Testing & Environmental Issues” on 10th April 2018 at the Department of Mechanical Engineering, B.S. Abdur Rahman Crescent Institute of Science & Technology, Chennai.
- Participated in a Day National Level Workshop on “Friction Material Concepts & Electronic Braking System”, 28th August 2019, Department of Mechanical Engineering, B.S. Abdur Rahman Crescent Institute of Science & Technology, Chennai.
- Attended a Pre-conference Workshop on Tribology in IndiaTrib 2019 – 10th International Conference on Industrial Tribology, Dec 1-4, 2019, IISc Bangalore.
- Participated in 6-Day AICTE Short-Term Training Programme (STTP) series on Recent Advances in Tribology and Surface Engineering: Series 1 of 4, 17-22 August 2020, Department of Mechanical Engineering, Saintgits College of Engineering, Kottayam, KERALA.
- Participated in 5-day International Short-Term Course (STC) on Tribology & Sustainability, 24-28 August 2020, Department of Mechanical Engineering, SRM Institute of Science and Technology Kattankulathur, Chennai, Tamil Nadu.
- Participated in the Workshop on characterizing plasticity in deformed metals, 19-21 May 2025, Department of Metallurgical and Materials Engineering, IIT Madras, Chennai, Tamil Nadu.

PROFESSIONAL MEMBERSHIPS:

- Member (#7230420156) of the Society of Automotive Engineers INDIA (***SAEINDIA***).
- Life Member (*LM #S5933*) in the Tribology Society of India (***TSI***) affiliated with the International Tribology United Kingdom.
- Reviewer of International Journals, namely ***SAE International*** and ***Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology***.

OTHER DETAILS (If any):

- Awarded a Doctor of Philosophy (***PhD***) from the Indian Institute of Technology Madras (**IIT Madras**) in June 2025.