



Prof. C. Balaji – Brief Bio

Prof. C. Balaji is currently an Institute Chair Professor at the Department of Mechanical Engineering, Indian Institute of Technology Madras, India. He is an internationally recognized expert in the field of thermal sciences. A University Gold Medalist from the College of Engineering, Guindy, Chennai, Prof. C. Balaji received his Ph.D. in Mechanical Engineering from IIT Madras in 1995 in the area of Heat Transfer. He has 30 years of experience in teaching and research. His areas of interest include fundamental heat transfer, cooling of electronics, thermal optimization, numerical weather prediction and use of machine learning for thermal engineering. Till date, Prof. C. Balaji has supervised 40 PhD and more than 85 Masters theses. The early contributions of Prof. Balaji are in the demonstration of the scientific and engineering merit of the inclusion of surface radiation in natural and mixed convection problems, proof of the existence of radiation-induced convection boundary layers, and methods to handle surface radiation in heat transfer problems, for the first time, in an era preceding the availability of commercial/community software. He was one of the earliest investigators to bring in (i) the idea of optimization in heat transfer and (ii) Bayesian statistics in inverse heat transfer problems.

Prof. C. Balaji is a world leader in the area of phase change material-based composite heat sinks for thermal management, battery cooling, and energy storage. Prof. Balaji has pioneered the use of multi-objective optimization strategies for these problems. He is the author or co-author of more than 230 International journal publications. Since 2016, Prof. Balaji also serves as the Editor-in-Chief of the International Journal of Thermal Sciences published by Elsevier one of the top journals in the field of heat transfer. He appeared in the World's Top 2 % Scientists in 2021, 2022, 2023 and 2024 published by Stanford University. He is a recipient of the Alexander Von Humboldt fellowship (2005), the Young Faculty Recognition Award of IIT Madras (2007), the Prof.K.N.Seetharamu award and Medal for excellence in Heat transfer research (2008), Swarnajayanthi fellowship award of the Govt. of India (2008), the Tamil Nadu Scientist Award (2010), Marti Gurunath Award for excellence in teaching (2013) and Mid-Career research award at IIT Madras (2015). He has done several projects both for the industry and research and development organizations. He is an elected fellow of the Indian National Academy of Engineering. He is the author of 15 books that include seven text-books, four monographs, two motivational books on teaching and research and two books on teaching and research translated into Tamil.