



INDIAN INSTITUTE OF TECHNOLOGY, MADRAS
OFFICE OF ALUMNI AND CORPORATE RELATIONS

CELEBRATING THE GENEROSITY OF



**MR. MUTHURAMAN
BALASUBRAMANIAN**

**IMPACT OF YOUR GIVING IN
2023**





DIRECTOR'S MESSAGE

PROF. KAMAKOTI VEEZHINATHAN DIRECTOR, IITM



Greetings! IIT Madras continues to retain her top position for the eighth consecutive year, in the National Institute Ranking Framework, thanks to the world-class research, unwavering dedication and creative mindset of its faculty and students. The contribution and support of Alumni and well-wishers like you have crucially helped this standing and stature. Our achievements in research, education, innovation, and entrepreneurship have also earned us the recognition of an 'Institute of Eminence' as well as the top position in the Atal Innovation Ranking from the Government of India.

IIT Madras is making an indelible mark in promoting and providing education to students from the length and breadth of India to areas beyond Indian territory, through her initiatives in rural developmental educational programs, international, interdisciplinary M.Tech courses, and online diploma courses. The popularity and reach of our online courses can be gauged by the fact that around 25000 students in ages ranging from 17 to 82, have enrolled for these courses across national boundaries, and about 30% are from rural India. The institute, in a first-ever initiative by an IIT, has consolidated its position on the world map by establishing her international campus in Zanzibar, Africa where about 45 students have been admitted to different programs.

Innovation and entrepreneurship are ingrained in all our endeavours – our ambitious ventures in rocket and space explorations, the development of lab-grown diamonds, hyperloop, the Brain Research Centre etc, are a testimony to this. The start-up ecosphere is also a reflection of this spirit, wherein last year, 70 startups came to fruition, successfully nurtured by our centres of excellence, the Centre for Innovation, Nirmaan – the pre-incubator, the Incubation Cell, technology centres such as 'IITM-Pravartak' at the IIT Madras Research Park and others. This year, our target is to incubate at least a 100 Start-ups in various sectors. It is expected that at least 20% of the passing out students will be proud CXOs of their own ventures! The year 2023 also saw 221 national and 105 international patents from our Institute and we are looking to closing this current financial year with 366 patents, to account for 'a patent a day'.

Towards promoting inter-disciplinary research and exploring new frontiers, a Department of Medical Sciences and Technology was launched in May 2023, a School of Sustainability in Oct 2023, a Department of Data Science and Artificial Intelligence in Nov 2023 and a new Interdisciplinary Dual Degree program on Quantitative Finance in Dec 2023 through the synergy of the departments of Management Studies, Computer Science and Engineering and Mathematics. Our School of Sustainability has signed MoUs for collaborations with Tel Aviv University, Israel and Technische Universität Dresden, Germany, with the aim of being recognized as a leader for sustainability teaching and research in the global south.

Lofty ambitions and achievements are impossible without the deep-rooted faith and support of alumni and well-wishers like yourself. We are indebted to you for your bountiful, impactful contributions and the faith reposed on us. On behalf of IIT Madras, I express my deepest gratitude for continuing to strengthen the Institute. Together with your support, we are confident of building an IIT Madras that is more inclusive, diverse, and seized of tomorrow's needs to be nationally and globally relevant.

Thank you!



DEAN'S MESSAGE

PROF. MAHESH PANCHAGNULA DEAN, ALUMNI & CORPORATE RELATIONS, IITM



Greetings from the Office of Alumni and Corporate Relations!

Please accept my sincere appreciation for the unwavering support you continue to provide to IIT Madras. Your generosity is the cornerstone of our success, and we are truly grateful for your commitment to the causes that are important to the students and faculty of IIT Madras. This report is a testament to the profound impact your contributions have had –by transforming the lives of students, supporting research, augmenting Institute infrastructure, enhancing learning or through supporting other myriad causes. Your trust in us propels our ambitions, and we are committed to ensuring that your donations are utilized to their fullest potential.

In a world evolving rapidly in science and technology, we have set ambitious goals for ourselves. Your enduring enthusiasm and support provide fillip to our efforts. IIT Madras stands as a beacon of diversity, sustainability, innovation and research excellence. While we have transformed over the years, our commitment to being a premier institute in the country and abroad, remains steadfast, attracting the brightest minds from across the globe. I cordially invite you to visit the campus, witness first-hand the salutary impact of your contributions, and observe the Institute's growth and evolution over the years.

Your generous gifts have made an incredible difference in our Institute's aspirations – Thank you!

Your continued partnership is invaluable as we navigate the exciting journey ahead, shaping the future of India and the world together.



MR. MUTHURAMAN BALASUBRAMANIAN



Ex-Chairman, Tata International Ltd
Ex-Vice Chairman, Tata Steel Limited

Born on 26th Sep 1944, Mr Muthuraman had his early college education at the Madras Christian College, holds degrees in Bachelor of Technology in Metallurgical Engineering from IIT, Madras (India) and a Masters of Business Administration from XLRI, Jamshedpur (India). He has also completed the Advanced Management Programme at European Centre for Executive Development (CEDEP), France and has undergone the "Challenge of Leadership" Programme at INSEAD, France.

Mr Muthuraman joined Tata Steel in 1966 and has held various positions at the Company including Vice President (Marketing & Sales) & Vice President (Cold Rolling Mill Projects). He was appointed as Executive Director in 2000, Managing Director of the Company in 2001 and non-executive Vice Chairman in 2009. Mr Muthuraman had held board positions in a large number of organizations. He was on the Board of International Iron & Steel Institute for several years and in its Executive Committee for 4 years. He served on the Board of Global Compact of the United Nations for 4 Years. He served on the Board of Bosch India Ltd. for 6 years. He was also on the Boards of Tata Industries Ltd. He was the Chairman of the Board of Governors of IIT, Kharagpur; NIT, Jamshedpur and XLRI, Jamshedpur. He was Chairman of several Tata Steel Group companies like Nat Steel, Singapore; Tata Steel, Thailand; Tinplate Company of India Ltd; Dhamra Port Company Ltd.; Tata Sponge Ltd. and Tata Martrade International Logistics Ltd.

Currently he is on the Boards of Sundaram Fasteners Ltd (of TVS Group), Narayana Hrudayalaya Ltd and Ashirvad Pipes Ltd - the Indian subsidiary of Aliaxis, the Belgium company who are the largest plastics pipes manufacturer in the world.

Under his visionary leadership, Tata Steel became a truly global company. The acquisition of Corus, UK and Netherlands in 2007, a landmark event, not only in the history of Indian Steel industry but also in the history of India which demonstrated the "coming of age" of Indian companies on Global Map.

Mr Muthuraman has been conferred with the prestigious "Padma Bhushan" award in 2012, from Government of India for his significant contribution to Indian Trade & Industry. He received the Distinguished Alumnus Award from IIT Madras in 1997 and from Madras Christian College in 2014 and the Tata Gold Medal from the Indian Institute of Metals in 2002. He also received the "CEO of the Year Award" from Business Standard in 2005, "CEO with HR Orientation Award" from World HRD Congress in 2005, Economic Times Award for Corporate Excellence in 2008 and IIM JRD Tata Award conferred by Indian Institute of Metals. Mr Muthuraman was bestowed an Honorary Degree of Doctor of Humane Letters, Honoris Causa from Loyola University, Chicago. He has been bestowed an Honorary Degree of Doctor of Science (Honoris Causa) from Indian Institute of Technology, Kharagpur. Recently, XLRI, Jamshedpur has conferred him with the Lifetime Achievement Award.



Muthuraman and Sumathi Visiting Chair

The Indian Institute of Technology (IIT Madras) has taken a significant step towards promoting sustainability and circular economy practices by establishing a dedicated chair focused on the exploration of urban mining.

The Muthuraman and Sumathi Visiting Chair was established on 5th September, 2023. The Visiting Chair is named after former vice chairman of Tata Steel, B. Muthuraman and his wife Sumathi. The Chair will focus on recovering critical metals such as indium and germanium, as well as on the purification of metals.

The Chair was awarded to Dr. R. Ratheesh, Director, Centre for Materials for Electronics Technology (CMET), Hyderabad, Ministry of Electronics and Information Technology.

CHAIR OCCUPANT



Dr. R. Ratheesh
Director

Centre for Materials for Electronics Technology (CMET)

Q EDUCATIONAL QUALIFICATIONS

Dr. R. Ratheesh completed Ph.D. in Physics from Kerala University in the year 1995. He worked as Scientist at Centre for Materials for Electronics Technology (C-MET), Thrissur from 1997 to 2016 and heading the microwave materials research activity. He took over as the Director of C-MET, Hyderabad in the year 2016. He is the recipient of many postdoctoral fellowships abroad which include Alexander von Humboldt fellowship at University of Osnabrueck, Germany, BOYCAST fellowship at State University of New Jersey, USA, Lady Davis fellowship at Solid State Institute, Technion, Israel, DIST bilateral fellowship at Department of Physics, University of Western Australia, Australia etc.

He has established First Centre of Excellence (CoE) on E-waste Management in the country at C-MET, Hyderabad campus on Public Private Partnership (PP) Model. The Li Ion battery recycling technology developed through hydrometallurgical route under Centre of Excellence on E-waste Management has been transferred to 15 private industries for commercial exploitation. In addition, many e-waste recycling technologies including 1000 Kg/day PCB recycling, Si solar cell recycling @10 Kg/batch, Permanent Magnet recycling @ 5Kg/batch etc were also developed for transfer to interested industries.



AWARDS/HONORS/FELLOW

Dr. Ratheesh has published more than 100 research papers in International Journals, 11 patents, 18 technology transfers, two book chapters and delivered more than 150 invited lectures. He has more than 27 years of experience as research guide and produced many Ph.Ds. Dr. Ratheesh bagged Young Scientist award from Government of Kerala in the year 2000, PSN National Technology Award in 2011, ELCINA-EFY Award for excellence in outstanding R&D in 2016-17 and Atmanirbharata Award from ISAS in the year 2023. Recently he has been selected as prestigious Muthuraman-Sumathi Honorary visiting Chair on Urban Mining at Department of Materials Engineering and Metallurgical Department, Indian Institute of Technology, Madras.

OTHER NOTED AWARDS -

- Alexander von Humboldt Fellow at Germany
- BOYSCAST Fellow at USA
- Lady Davis Postdoctoral Fellowship at Israel
- DIST bilateral Fellowship at Australia
- Life Member, Materials Research Society of India



ON - GOING PROJECTS

- Centre of Excellence in E-waste Management (HD/SP/041) (Sponsored by MeitY& Govt. of Telangana, Outlay: 3580 lakhs DOS: 30.09.2019; DoC: 29.09.2024), Chief Investigator
- Development of antennas for Navigation with Indian Constellation (HD/SP/039) (Sponsored by MeitY, Outlay: 262.00 lakhs, DoS: 29.09.2018, DoC: 28.09.2021), Chief Investigator
- Purification of Hafnium metal sponge using Electron Beam melting and preparation of hafnium metal targets for electronic applications (HD/SP/043) (Indo-Bulgarian Bilateral project sponsored by SERB, Outlay: 11.82, DoS: 11.02.2020; DoC: 10.02.2022), Chief Investigator



AREAS OF RESEARCH

His current area of research activities include development of cost effective and environmentally benign e-waste recycling technologies, high end microwave ceramics and composites for wireless communication applications, development of receiver antennas for Navigation with Indian Constellation, growth of SiC single crystal boules for power electronics applications etc.

His research group has also successfully developed a patented process methodology jointly with VSSC for the fabrication of Super high Q Barium Magnesium Tantalate (BMT) dielectric resonators which are currently being used in INSAT for satellite communication applications. Two US patents were recently awarded to him for the development of high end microwave printed circuit boards which are embargo items to Indian strategic sectors. This technology has already transferred to private industry for commercial production.



R&D ACTIVITIES INITIATED UNDER THE MUTHURAMAN-SUMATHI VISITING CHAIR ON URBAN MINING

Ministry of Mines, Government of India has recently released list of 30 critical minerals based on economical importance and supply chain risks. Most of these materials are inevitable in strategic as well as high end device applications. China has banned export of both Gallium and Germanium since both the materials are extensively used in semiconductor manufacturing. Considering the National Semiconductor Mission (NSM) initiative by Government of India and the critical materials supply chain required for the same, it is decided to work on recovery of Gallium, Indium and Germanium from end of life EEE products. Three project proposals were already formulated in this line and ready for submission to various funding agencies. End of Life LEDs were collected and various chemical analyses have been carried out to ascertain the value content in these WEEE products.

Experimental strategies were frozen to recover critical elements such as Ga and In from these spent EEE products with superior extraction efficiency and purity. Novel polymer based sensor development project was also initiated in collaboration with IIT Madras faculties to deploy them in solvent extraction streams for the recovery of valuable metals such as Li, Co, Mn and Ni during Li Ion Battery recycling process. Upcycling of the recovered secondary materials from WEEE product is another niche area which is being explored under Muthuran-Sumathi Chair. Recovery of 5N purity Silicon from mother board processors and preparation of SiGe ingots from the secondary raw materials for thermoelectric devices are some of the unique concepts being conceived and translated as part of the Chair.

Delivering lectures to students and Ph.D scholars on thematic areas such as effective utilization of spectroscopic techniques for molecular structure elucidation, circular economy principles to promote resource efficiency in e-waste management, upcycling strategies and green product design etc. are also being planned as a part of Muthuraman-Sumathi Chair on Urban Mining.

WE ARE GRATEFUL TO YOU & YOUR FAMILY MR. MUTHURAMAN BALASUBRAMANIAN



Thank you for your sustained generosity to IIT Madras over the years. Contributors such as yourself enable our students and Professors to dream big and work towards a better and brighter future. We hope you are proud of your Alma mater and how it has remained steadfastly committed to academic and research excellence since your time here. You and your family have been instrumental in facilitating this significant growth.

Our efforts to nurture the culture of academic excellence that is the hallmark of IIT Madras - quality education, cutting-edge research, and unfettered creativity shall continue. We are privileged and humbled to have you and your family walking with us along this trail. We wish you and your family the best always in all walks of life!



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