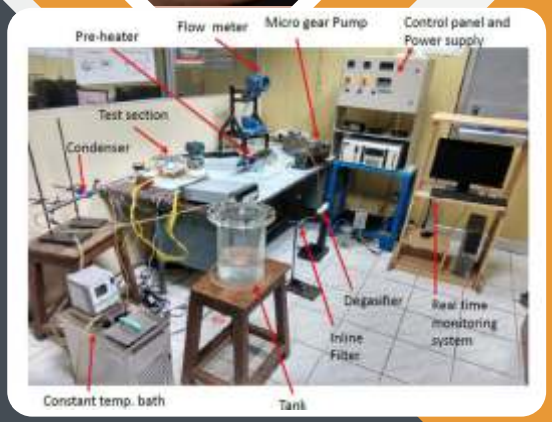
Indian Institute of Technology Madras
Office of Alumni and Corporate Relations

V. BALAKRISHNAN INSTITUTE CHAIR

IMPACT OF YOUR GIVING

Dr. SATISH RAMAKRISHNA



EXPERIMENTAL TEST RIG - MICROFLUIDICS (FLOW BOILING IN MICROCHANNELS) - PROF. SARIT KUMAR DAS

DIRECTOR'S MESSAGE

Prof.
KAMAKOTI VEEZHINATHAN
Director, IITM

Greetings!

IIT Madras continues to retain her top position for the seventh consecutive year, in the National Institute Ranking Framework, thanks to the world-class research of its faculty and students. The contribution and support of *Alumni and well-wishers like you* has 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.

The institute is making an indelible mark with her '*research with impact*' in several areas including quantum computing, drinking water technology, and industrially relevant mathematical models for governance, rendering cancer cure more effective. Our centres of excellence, the Center for Innovation, *Nirmaan* – the pre-incubator, the Incubation Cell, technology centres such as '*IITM-Pravartak*' and others, work in unison for not just *our* nation's building, but societies *worldwide*. We aspire to be locally impactful and globally relevant through all these efforts.

Towards exploring new research frontiers, a Department of Medical Sciences and Technology has been launched to conjoin medicine and engineering. Similarly, a School of Sustainability is on the horizon to research sustainable practices in the Global South. The campus is moving towards 'carbon-net-zero' goal through water conservation by 100% recycling, efficient garbage disposal, and electrification of vehicles. The traditional education system is undergoing a paradigm shift, with our online Bachelor of Science programme in Data Sciences and the National Program of Technology Enhanced Learning, that have won Gold in the 'Lifelong Learning' category and Silver in the 'Best Online Program' category of the Wharton-QS Reimagine Education Awards 2022 respectively. IIT Madras is leading this revolution from the front.

Such achievements are not possible without the deep-rooted faith and support of alumni and well-wishers such as yourself. We are indebted to you for your generous, bountiful, and impactful contributions. On behalf of IIT Madras, I offer you our 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 enabled by an ecosystem to be nationally relevant and globally recognised - Thank you!

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DEAN'S MESSAGE

Prof.
MAHESH PANCHAGNULA
Dean, Alumni &
Corporate Relations, IITM

I express my heartfelt gratitude to you for your generous support to IIT Madras. We appreciate your passion for supporting the causes you do, and I assure you that your contributions will be optimally utilized. This report has been compiled to convey how your largesse has touched lives and made a difference at IIT Madras. In keeping with the rapid, contemporary strides in science, and technology we have set ambitious goals for ourselves - your continued enthusiasm and support will help us greatly in these endeavours.

IIT Madras is far more diverse in its set of pursuits, greener and more research-focused. And yet, it remains unchanged over these years, it is still the best Institute in the country, and attracts the best students that India has to offer to come and make a mark. I also cordially invite you to visit your campus to see for yourself, the impact of your contribution, and the growth and transformation the Institute has undergone over the years.

We can never express our gratitude enough for all that you have done - Thank You!

ABOUT
Dr. SATISH RAMAKRISHNA

Dr. SATISH RAMAKRISHNA

1987 / B. Tech / Electrical Engineering

Dr. Satish Ramakrishna is an accomplished professional and the Managing Director of Two Sigma, a leading technology and investment firm. With extensive experience in the field of finance and technology, he plays a pivotal role in driving Two Sigma's strategic growth and success.

Dr. Ramakrishna holds a strong academic background, having earned his bachelor's in electrical, Electronics, and Communication Engineering from IIT Madras and Ph.D. in Theoretical Physics from Cornell University. His deep understanding of both quantitative finance and cutting-edge technology has allowed him to make significant contributions to the financial industry.

As the Managing Director of Two Sigma, Dr. Ramakrishna oversees various critical aspects of the company's operations, including investment strategies, risk management, and technological innovation.

He leads a team of talented professionals, guiding them toward the development of sophisticated investment models and the implementation of advanced technologies to gain a competitive edge in the market. He is also a Visiting Professor at Rutgers University.

Throughout his illustrious academic journey, Dr. Ramakrishna has made substantial contributions to the field of theoretical physics, garnering recognition for his research in quantum information and quantum cosmology, as well as charge-density-waves.

We are delighted to share the work and impact of the projects made possible at IIT Madras. We rejoice at his generosity towards his alma mater and are grateful to him and his family.

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YOUR STELLAR JOURNEY

B. Tech in Electrical, Electronics and Communication Engineering	Ph.D. in Theoretical Physics	Graduate Student / Teaching Research Assistant	Vice President
1983 - 1987	1987 - 1992	June 1987 - Mar 1993	Feb 1994 - Sep 1995
Vice President	Managing Director, Risk Advisory	Visiting Scientist	Managing Director, Chief Risk Officer
Sep 1995 - Nov 1996	Dec 1996 - Feb 2017	Feb 2017 - Present	Oct 2018 - Present

V. BALAKRISHNAN INSTITUTE CHAIR

Prof. SARIT KUMAR DAS

FIRST OCCUPANT OF THE
V. BALAKRISHNAN INSTITUTE CHAIR,
PROFESSOR, DEPARTMENT OF
MECHANICAL ENGINEERING

IIT Madras launched V Balakrishnan Institute Chair to focus on research and teaching in the areas of natural sciences, mathematics, and the theoretical foundation of engineering.

The Chair was named in honour of Prof. V Balakrishnan, a former faculty of IIT Madras, and a distinguished Indian theoretical physicist whose expertise spans several fields and areas, including particle physics, many-body theory, and the mechanical behavior of solids, dynamical systems, stochastic processes, and quantum dynamics. He is an accomplished researcher who has made important contributions to the theory of an elasticity, continuous-time random walks, and recurrences in dynamical systems, says a release from the institute.

The research group of Prof. Sarit K. Das works with various aspects of Thermo fluidics like heat and mass transfer in industrial types of equipment such as heat exchangers and fuel cells, multiphase flow, and energy conversion. Water management in PEM fuel cells and thermal management of battery stack are the two active areas in this direction. The group specifically focuses on Micro-Nano scale processes and is known to be one of the leading groups on Nanofluids in the world. Another area of focus of the group is Biomicrofluidics. It works on design, fabrication, simulation, and experimentation on Biochips, which are specifically conceptualized to mimic human physiological conditions. The focus is to use this for medical diagnostics, a platform for drug delivery and understanding physiological and pathological states related to cardiovascular diseases and cancer. The group has also started working on thermal desalination techniques such as Multi-flash and HDH (Humidification and Dehumidification) systems.

EDUCATIONAL BACKGROUND

Post-Doctoral - Helmut Schmidt University Hamburg, Germany (1993 - 1994).
Ph.D. - Heat Transfer, NIT Rourkela (Sambalpur University), India (1994).
M.E. - Heat Power Engineering, Jadavpur University, India (1987).
B.E. - Mechanical Engineering, Jadavpur University, India (1984).

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EXPERIENCE IN BRIEF

V. Balakrishnan Chair - (June 2022 - till date) at Department of Mechanical Engineering, IIT Madras, India

Institute Professor - (May 2021 - till date) at the Department of Mechanical Engineering, IIT Madras, India.

Institute Chair Professor - (May 2016) at the Department of Mechanical Engineering, IIT Madras, India.

Professor and Director - (June 2015-January 2021) at Indian Institute of Technology Ropar, India.

Professor - (Jan 2004 - till date) at Department of Mechanical Engineering, IIT Madras, India.

Associate Professor - (Sep 2000-Jan 2004) at Department of Mechanical Engineering, IIT Madras, India.

Assistant Professor - (Dec 1995-Sept 2000) at Department of Mechanical Engineering, IIT Madras, India.

Senior Lecturer - (Feb 1988- Dec1995) Regional Engineering College, Rourkela, India.

Lecturer - (Dec 1986-Feb 1988) Regional Engineering College, Silchar, India.

For more details CLICK HERE

BROAD AREA OF RESEARCH

Prof. Sarit Kumar Das has contributed significantly to a wide range of scientific and engineering research problems of industrial importance, academic interest, and national as well as societal need. His research contributions are in the fields such as,

- Biomicrofluidics and Healthcare
- Fuel Cells and Battery Thermal Management
- Electronic Cooling
- Desalination technology

1. BIOMICROFLUIDICS AND HEALTHCARE

Research impact: Microfluidic device is a platform on which thermal, chemical, and bio-physical gradients of interest can be created and maintained by means of manipulating fluid flow in microchannels. It is the future technology for complete health monitoring and biomedical research.

Current happenings and status of research:

Over the last few years, Prof. Das's group has developed microfluidic chips for generating temperature, shear stress, and chemical species gradients to understand their role in physiological functions as well as disease progression. Currently, Prof. Das's group is engaged in developing multiple organs-on-a-chip platforms and understanding the physical phenomena of cancer metastasis using microfluidic technology. The organs-on-a-chip platforms which Prof. Das is working on are Heart-on-a-Chip and Kidney-on-a-Chip.

Further, he is also working on developing a cryogenic treatment platform for cancer therapy and blood-plasma separation using a paper microfluidic device that will make point-of-care diagnostics affordable for all.

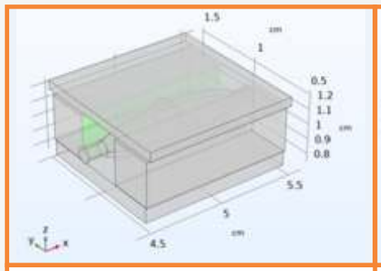
Heart-on-a-Chip:

- **Cardiovascular disease –** is the leading cause of death worldwide (Ribas *et al*. 2016; Sakamiya et al. 2020)

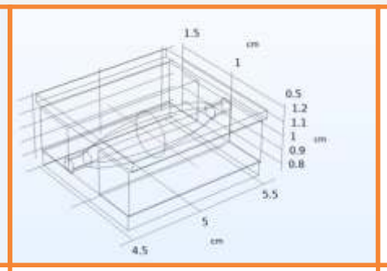
  Post-COVID, the number of cardiac ischemia deaths increased worldwide.

Most Heart-on- a-chip cardiac disease models reported till now.

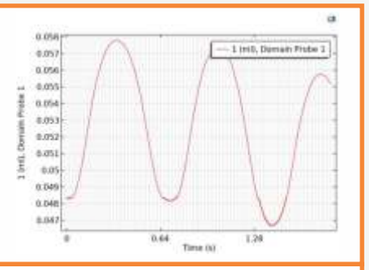
- Failed to mimic the human cardiac tissue.
- Used non-beating cardiac cells.
- Failed to report biophysical impacts of physical and chemical imposed hypoxia.
- Lacks the influence of acidosis on cardiac hypoxia.
- Failed to bring out the interplay of different physiological parameters such as beating, pressure, shear stress, and acidosis on cardiac tissue.
- Failed to investigate the effect of environmental toxins on different physiological parameters of heart tissue.



Current Device Conceptualization



Cutline line (CL) indication (red line)



Fluid volume in the balloon

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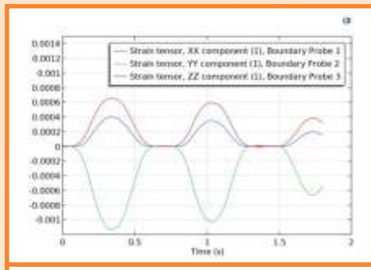
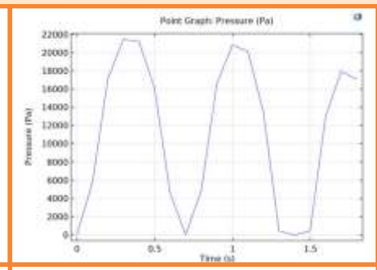
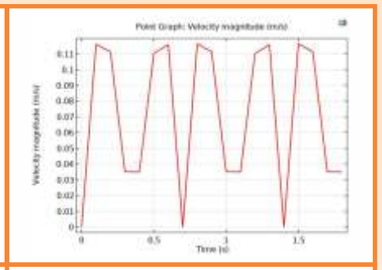
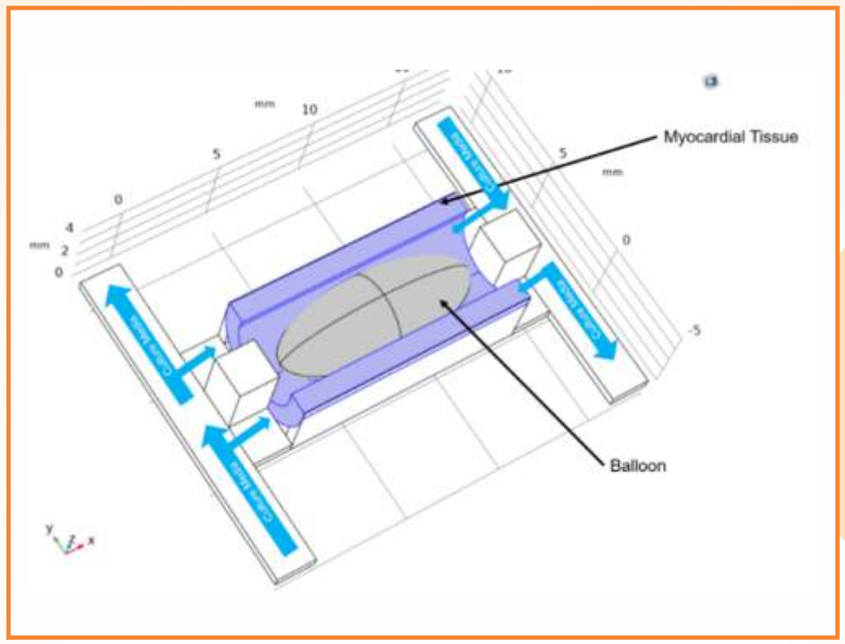




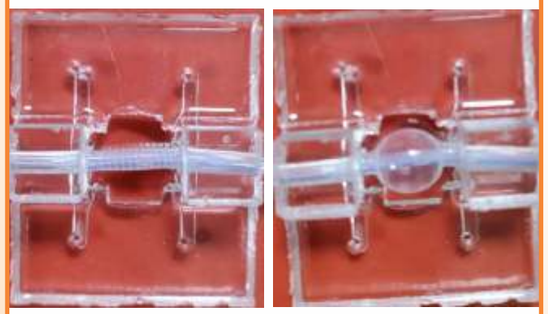
Pressure at Cutline

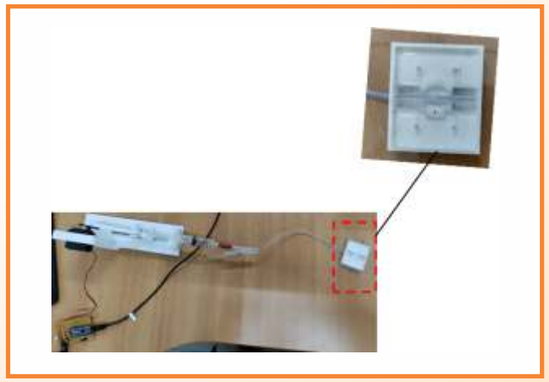


Fluid volume in the balloon



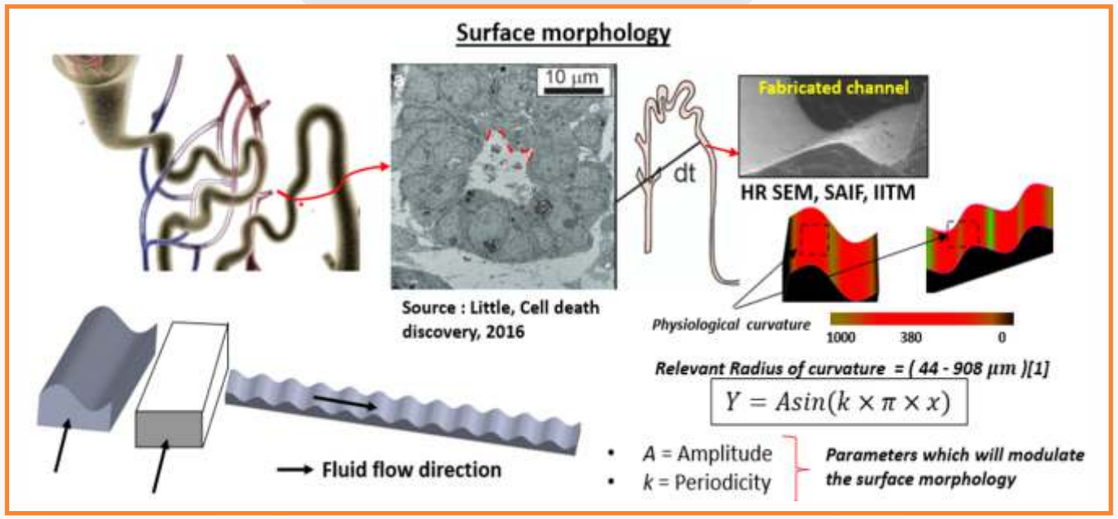
Current Device Conceptualization

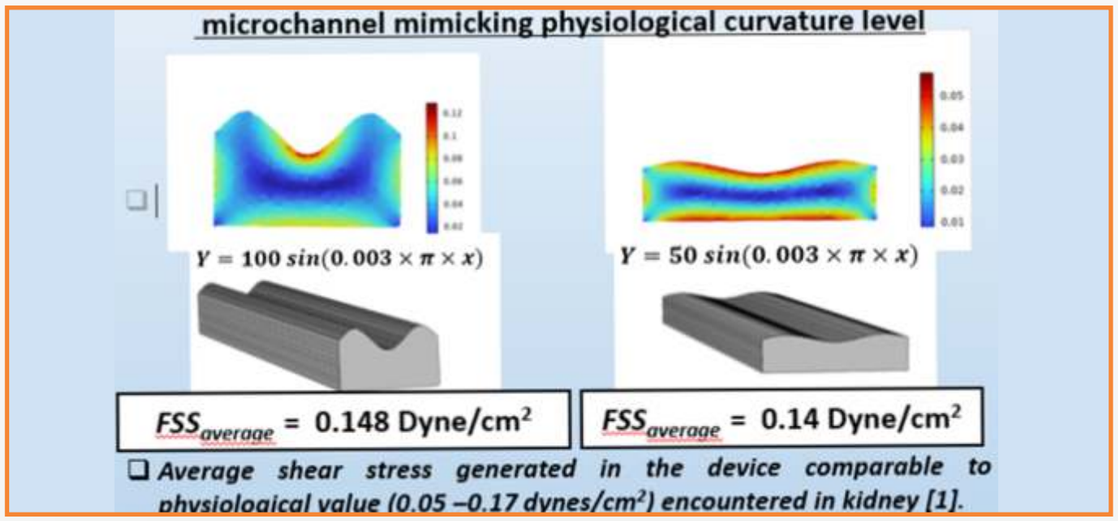




Fabricated Device

Kidney-on-a-Chip:





- A microfluidic device has been designed and simulated to mimic physiological conditions of the Kidney microenvironment to understand the role of mechanical stimulus of functioning and filtration process of the organ.

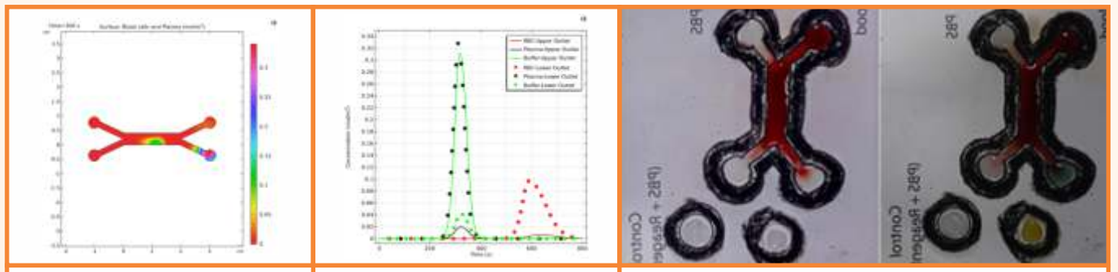
PAPER MICROFLUIDICS

- The separation of plasma from whole blood is the first step in many diagnostic tests.
- Point-of-care tests often rely on integrated plasma filters in paper-based microfluidic analytical devices **(µ-PAD)** [2]

Limitations of reported µ-PAD [2]

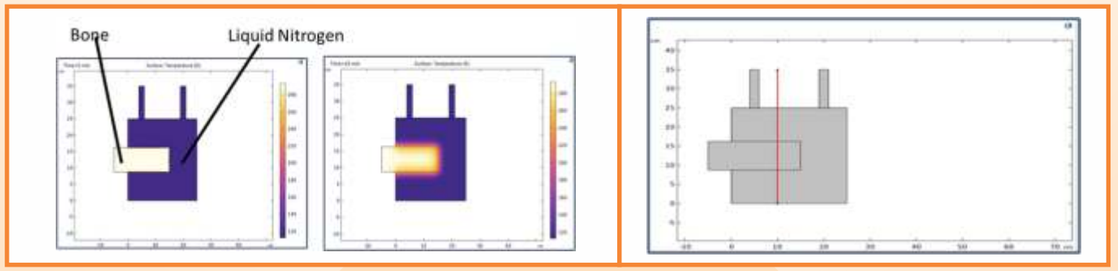
- Requirement of commercially available membranes
- Expensive
- Less separation
- Complex device fabrication steps
- Loss of proteins

Protein Standard Assay in Paper Microfluidic device



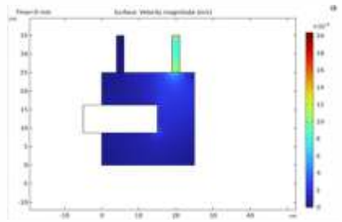
COMSOL simulated surface plots of blood-plasma separation in the P- µFD.	COMSOL simulation predicted concentrations of blood, plasma and buffer in different outlet reservoirs of the two inlets/ outlets, straight, short length microchannel geometric combination P- µFDs.	Blood-plasma separation and calorimetric analyte (glucose and protein) assay in the two inlets/outlets, straight and short length microchannel geometric combination P-µFD.

REMOVAL OF OSTEOSARCOMA USING LIQUID NITROGEN

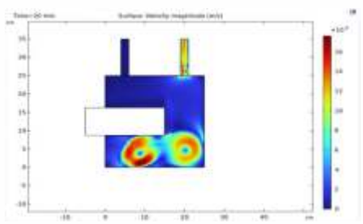


Temperature variation at the line x = 10 cm
The line x = 10 cm is displayed in red

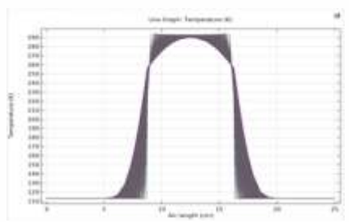
Velocity Variation over time



T = 0



T = 20 MINS



The peak in middle is bone
and the surrounding is liquid N2

Output

Patent:

1. Nithya Murugesan, Sarit Kumar Das, Nitish R Mahapatra, Soma Guhathakurta, Tuhin Subhra Santra and Dhiman Chatterjee, Methodology to develop beating heart-on-a-chip using mechanically and electrically stimulated microfluidic platform – under preparation

Journal Publication:

1. Nithya Murugesan, Lakshmi I Jyothish, Harshini Tummala, Azharuddin Mohammed, E Nivedita, Sarit Kumar Das*, Channel resistance guided rapid blood plasma separation using diffusion-based paper microfluidic devices– under preparation

2. FUEL CELL AND BATTERY THERMAL MANAGEMENT

Research impact (in general): Fuel Cell

A fuel cell is an electrochemical energy conversion device that provides higher efficiency and reduced emissions. A fuel cell is currently used in transportation as well as stationary power applications around the world. Current research in fuel cells combines advanced materials and manufacturing of the latest technology with unique design techniques and operational strategies. These developments aim to increase the reliability and efficiency of fuel cells at a lower cost.

Current happenings/status of this research:

Fuel cell is a research area on which Prof. Das and his group are proceeding with the study of the effects of flow distributors on performance, followed by self-humidification and water management. Recent experiments were conducted by scholars to find out the operational stability of PEM fuel cell taking the effects of surface modification through copper corrosion and surface wettability into consideration. Development in this area is focused on computational analysis of PEM fuel cell operating on pure oxygen considering liquid water formation effects on water management and performance.

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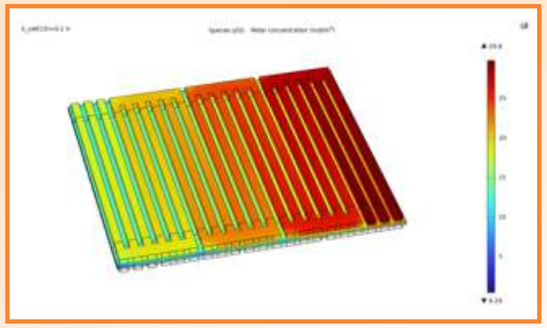
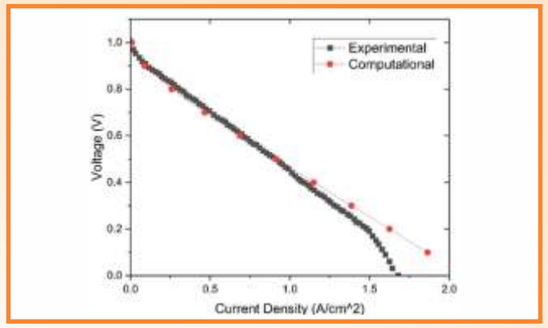


Oxygen molar concentration (mol/m³)
at the cathode side of PEM fuel cell



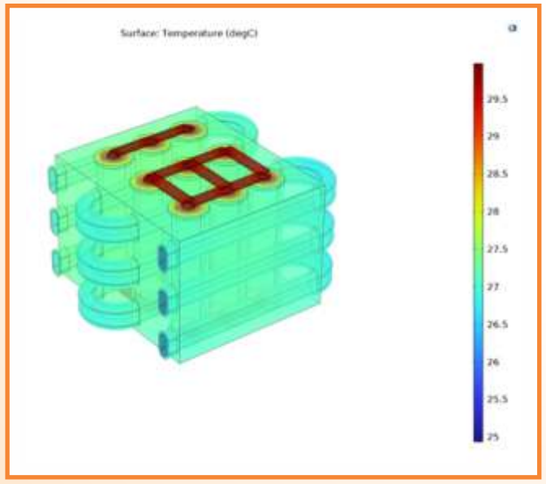
Polarization plot for 60°C cell operating temperature
with 100% humidity on both anode and cathode side

Research impact (in general): Battery Thermal Management

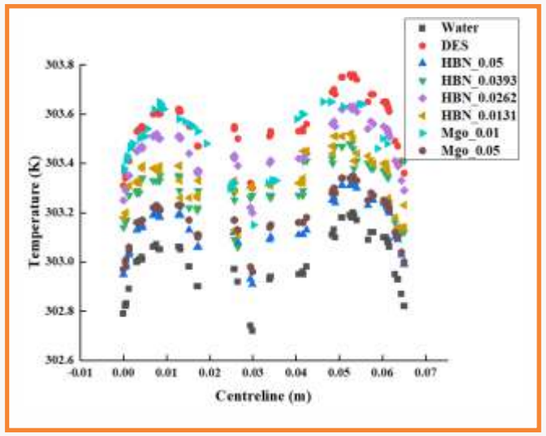
In the charging and discharging process of electric vehicles, how to maintain the power battery within the optimum operating temperature range, and reduce the peak temperature and the temperature difference, needs to be paid attention to. Proper cooling technology can reduce the negative influence of temperature on the battery pack, effectively improve power battery efficiency, improve safety in use, reduce the aging rate, and extend its service life.

Current happenings/status of this research:

Several battery thermal management systems (BTMS) such as liquid cooling, PCM-based BTMS, heat pipe-based BTMS, and refrigerant direct cooling BTMS are reviewed. The objective of the research to find the advantages and disadvantages of different BTMS as well as the economic benefits of each.



- The system of 9 battery cells (18650 cylindrical) is used to simulate heat generation.
- Liquid cooling method is adopted to extract heat from the battery.
- DES-based nanofluids are suggested over water because of its low freezing point and dielectric nature. Different volume fractions of Hexa Boron Nitride (HBN) and Magnesium oxide (MgO) particles used.



- HBN_0.05 performs best among all due to high thermal conductivity and heat capacity compared to others.
- With the decrease in concentration ability to extract heat reduces.

Output (Fuel Cell)

Patent:

1. Super-hydrophobic mixed flow fields for enhancing water management in Polymer Electrolyte Membrane Fuel cell. Sarit Kumar Das, Allwyn Blessing Johnson N, Avijit Baidiya. *Indian Patent No:* 429719 (2023)

Publication:

1. Experimental investigation on the adverse effects of corrosion in the current collectors on the performance of PEM fuel cells. N.A.B. Johnson, Sarit K. Das and Ashis Kumar Sen. Transactions of the *Indian National Academy of Engineering* , (2022)
2. Effect of humidification and cell heating on the operational stability of polymer electrolyte membrane fuel cell. N.A.B. Johnson, Sarit K. Das and Ashis Kumar Sen. International Journal of Hydrogen Energy – under review

Output (Battery Cooling)

Patent:

1. An organic nanofluid for cooling of battery stack and a method of manufacture thereof. Pyarimohan Dehury, Sarit Kumar Das, *Indian Patent Application No: 202241038156 - Filed* (2022)

Publication:

1. Dehury, Pyarimohan; Chaudhari, Shahil ; Banerjee, Tamal; Das , Sarit Kumar , Prediction of thermophysical properties of deep eutectic solvent organic nanofluids: a machine learning approach, Industrial & Engineering Chemistry Research – under review
2. Pyarimohan Dehury, Namitha Patapanchula, Shahil Chaudhari, Tamal Banerjee and Sarit Kumar Das, Predicting thermophysical properties of deep eutectic solvent nanofluids using neural network approach, Proceedings of the 17th International Heat Transfer Conference, IHTC-17 14 – 18 August 2023, Cape Town, South Africa.

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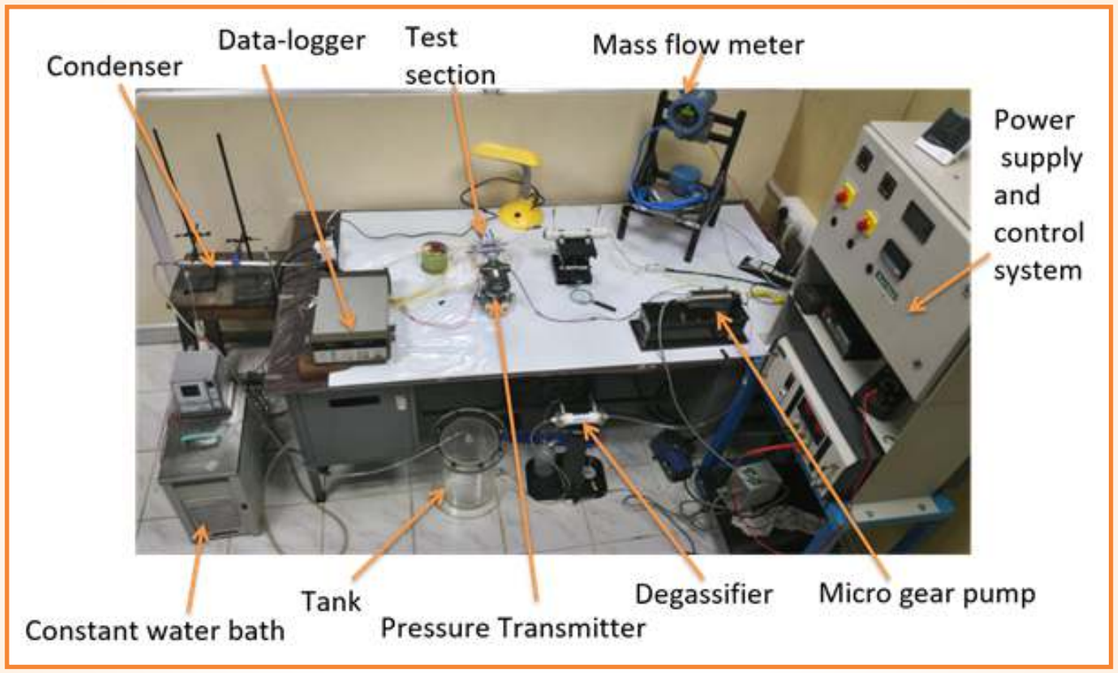
3. ELECTRONIC COOLING

Research impact (in general): Flow Boiling:

Advances in electronic packing technology led to ever-increasing demand for cooling capacity. Removing high heat fluxes efficiently and maintaining a safe operating temperature is challenging in these devices. Flow boiling in microchannels is a promising solution as it utilizes the high latent heat of phase change and provides a high heat transfer area to fluid flow volume ratio.

Current happenings/status of this research:

Prof. Das's group has developed an experimental test rig to investigate flow boiling in microchannels. They have investigated the effect of aging or oxidation of copper microchannels on the heat transfer coefficient and critical heat flux (CHF).



Output

Books:

1. Vapour-liquid two-phase flow and phase change - Ane Books Pvt Ltd.; 1st edition (9 March 2022).

Journal Publication:

1. Rishi Ramakrishnan L, Sateesh Gedupudi, Sarit K. Das, Experimental investigation of influence of copper microchannel hydraulic diameter on flow boiling heat transfer and CHF with boiling induced aging – manuscript under preparation.
2. Rishi Ramakrishnan L, Sateesh Gedupudi, Sarit K. Das, Assessment of empirical correlations for microchannel flow boiling heat transfer and CHF with boiling induced aging – manuscript under preparation.

Research impact (in general): Nanofluid

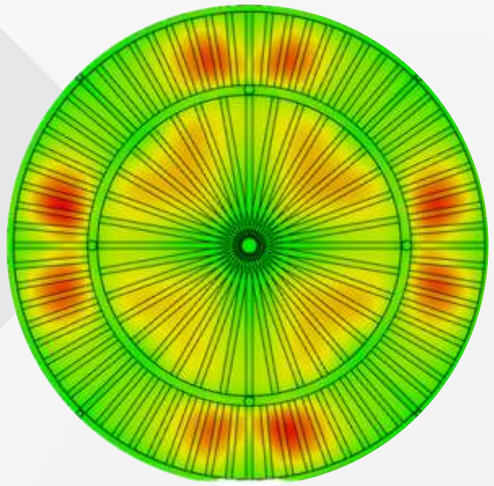
To study the thermo-physical properties of the nanofluid (Characterization, optimization) and enhance the rate of cooling along with ambient antifreeze properties in the electronic device with a coolant mechanism to optimize as per the device requirements using unique design, fabrication and experimentation techniques.

Current happenings/status of this research:

Coolant: Synthesizing Nanofluid to achieve non-freezing base-fluid at freezing ambient temperatures.

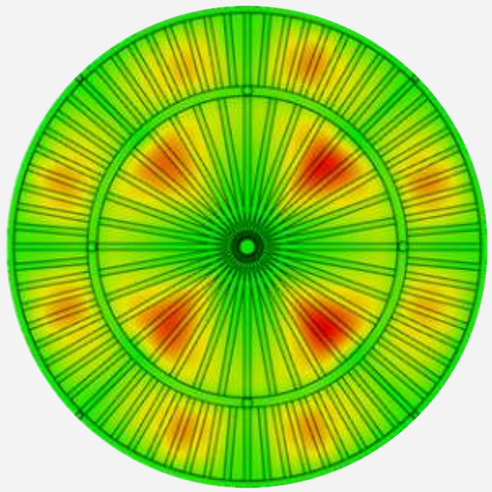
Fabrication: Meso/microchannels to achieve the real-time pressure drop and thermal conduction studies.

Reliability test: optimization of inlet fluid flow properties, pump capacity and analysis of environmental impacts on the final product.



DES with 40 kW/m²

Flow rate: 4885.098 mL/min
V1=1.593m/s
V2=3.99m/s
Pressure drop= 25523 Pa,
ΔT=53.3°C
1:2.5



Water with 10 kW/m²

Flow rate: 4885.098 mL/min
V1=1.593m/s
V2=3.99m/s
Pressure drop= 20137 Pa,
ΔT=8.8°C
1:2.5

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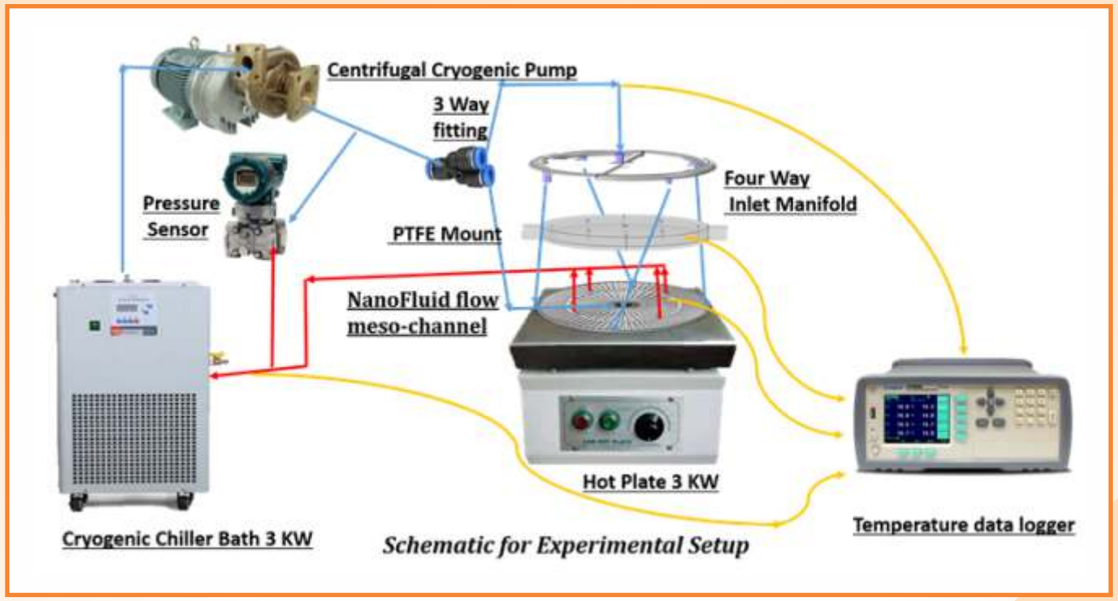
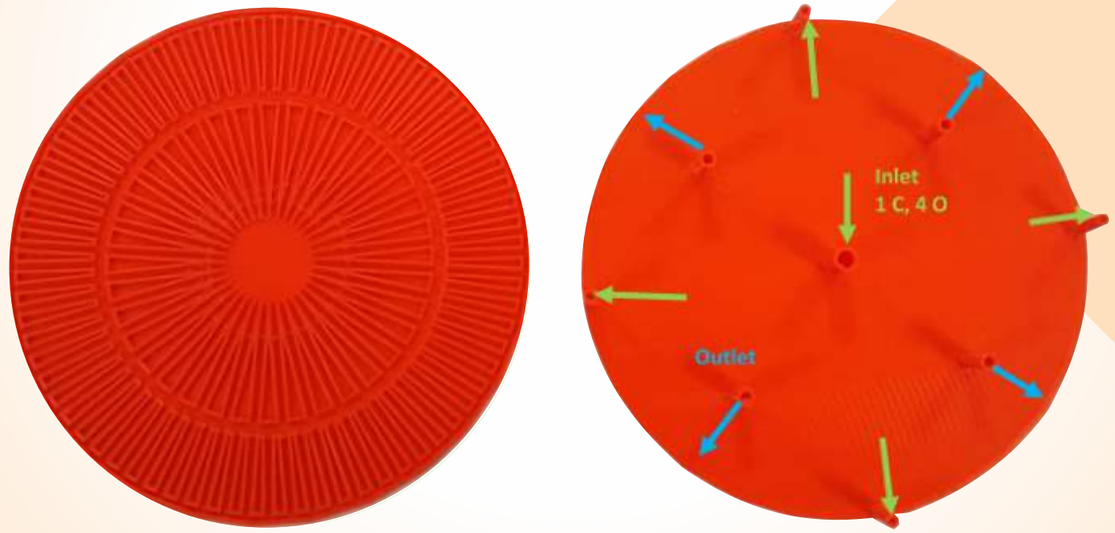


A Nanofluid in Mesochannel-based Cooling System for
Electronic Material Processing Device for Industrial Applications



3D Model Prototype: mesochannel / PLA

Output

We are working towards the solution for thermal management system-based cooling during semiconductor vapor processing which can be patented after experimental/simulation validation and implementation.

4. DESALINATION TECHNOLOGY

Research impact (in general):

Desalination has significantly influenced scientific research, advancing the fields of materials science, energy efficiency, and process optimization which have not only facilitated a greater uptake of desalination technology but have also created new opportunities for sustainable water management in areas with a lack of water.

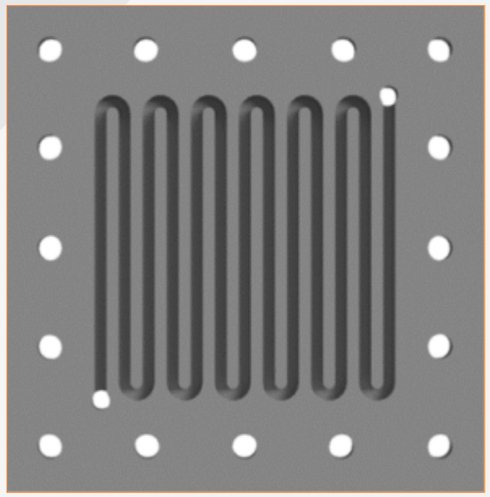
Current happenings/status of this research:

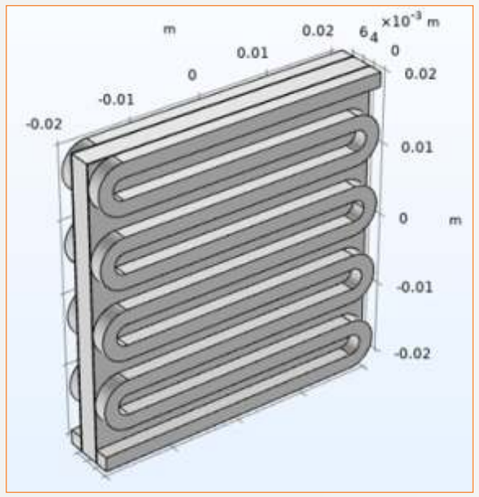
Prof Das started his work in the desalination sector on his second visit to MIT in Cambridge. He began by working on one of the most promising thermal desalination technologies, humidification and dehumidification (HDH). Due to high energy intensive and low performance of thermal technologies, the group has opted to work towards Flow Electrode Capacitive Deionization (FCDI) as the most effective electrochemical desalination technique. **Currently, Prof. Das' team is working to create a numerical model of FCDI that can be used to determine the best configuration for the device's continuous operation.**

Output

1. Garg, K., Beniwal, R., Das, S. K., and Tyagi, H., 2023, "Experimental Investigation of a Low-Cost Humidification-Dehumidification Desalination Cycle Using Packed-Bed Humidifier and Finned-Tube Heat Exchanger," Thermal Science and Engineering Progress, 41, p. 101858.
2. Shubham Kumar Mishra and Sarit Kumar Das, A comprehensive review on flow-electrode capacitive deionization: Recent development in design and operation, environmental application and future perspective – manuscript under preparation.

Geometry Modelling





Specification of Flow channel

Flow Electrode Channel Width: 2 mm

Flow Electrode Channel Depth: 2 mm

Effective Area: 753.9 mm^2 (752 mm^2)

Thickness of Water Channel: 3 mm

Thickness of Membranes: 0.16 mm

STUDENT CONTRIBUTIONS INVOLVED IN RESEARCH

1. Rishi Ramakrishnan L – IIT Madras (Writing his PhD thesis)
2. Supratim Saha – IIT Madras (Pursuing PhD)
3. Shubham Kumar Mishra – IIT Madras (Pursuing PhD)
4. Kapil Garg - Research Fellow in Heat Engineering - Cranefield University
5. Suhail Ahmad – IIT Madras (Pursuing PhD)
6. Navdeep Malik – IIT Madras (Pursuing MS)
7. Shahil Chaudhari – IIT Madras (Pursuing M.Tech)
8. Nivedita E – IIT Madras (Pursuing Internship)
9. Sujatha – IIT Madras (Project Officer)
10. Pyarimohan Dehury - Assistant Professor · Institute of Chemical Technology-Indian Oil Odisha
11. Namitha Patapanchula – IIT Madras (Pursuing B.Tech)
12. Sai – IIT Madras (Pursuing B.Tech)
13. Nithya M – IIT Madras (Postdoctoral Researcher)
14. Allwyn Blessing Johnson N - Assistant Manager, Larsen and Toubro Ltd. (Green Energy Business),Mumbai
15. Avijit Baidiya - Postdoctoral Fellow, Chemical and Biomolecular Engineering, UCLA,
16. Gopal – IIT Madras (Pursuing B.Tech)
17. Girish – IIT Madras (Pursuing B.Tech)
18. Harinath – IIT Madras (Pursuing B.Tech)

PLANS FOR THE YEAR 2022- 2023

- Biomicrofluidics and Healthcare

At present, our research group is primarily focusing on heart and kidney biomechanics. The mechanical parameters such as pressure-volume changes and fluid\wall stresses play a critical role in normal functioning of the heart and kidney. Hence, we are in the course of developing heart-on-a-chip and kidney-on-a-chip platforms which can simulate the mechanical properties. Collaborators: Prof. Nitish R Mahapatra, Dr. Soma Guhathakurta, Dr. Tuhin Subra Santra, and Prof. Dhiman Chatterjee.

- We are also working on cancer research such as

  i. Cryo-surgery for osteosarcoma, in collaboration with Adyar Cancer Institute.

  ii. Influence of fluid shear stress and extracellular matrix stiffness on cancer cell progression.

- Fuel Cell and Battery Cooling

  Computational analysis of PEM fuel cell operating on pure oxygen incorporating the effects of water vapor condensation and evaporation inside the domain along with the effects of polymer membrane electrical conductivity changes due to liquid water content inside the membrane.

  Study the effects of channel surface modification on fuel cell performance and water management and validate the same with the experimental results.

- Electronic Cooling

  Validation of simulation with experimental results for dual radial geometry proposed and molecular dynamics simulation to come up with a new nanofluid that can have a dielectric constant around 2.5 and a working temperature range of -60° C to 150° C.

  Experimental validation using the new nanofluid for other electrical and electronic devices.

- Desalination Technology

Currently, our research team has finished the literature review of previous studies on flow capacitive deionization. The primary research gap we now have is that all of the work has been experimental, which takes time to determine the best electrode material, flow channels, design, and operations. Therefore, we are mainly concentrating on the development of a general mathematical model for the 3D transient situation in a single-stack FCDI configuration and performing simulation work that would revolutionize its study in designing the optimum flow channels and configuration.

PERSONALISED THANK YOU NOTE FROM Prof. SARIT KUMAR DAS

The V. Balakrishnan Chair occupant Prof. SK Das thanks the donor of the Chair profusely for the support and the freedom it provided him to pursue his research in exploring the physics behind energy-producing devices and human physiological/pathological activities. The aim of these studies is on one hand to explore the underlying science and on the other hand to use it for the benefit of humanity. Many of these studies such as organ-on-a-chip and electronic cooling are in a very advanced state where breakthroughs are expected in the coming one or two years. The chair occupant promises to keep the donor informed about such breakthroughs as and when they come. Finally, the inspirational presence of Prof. V. Balakrishnan and the lesson of his life always motivates Prof. Das to excel as an educator. His recent book “Vapour-liquid two-phase flow and phase change”, published by Springer is a testimony of that. The chair occupant once again promises impactful research and academic endeavors in the future with support from this chair.

Indian Institute of Technology Madras,
Office of Alumni and Corporate Relations

GIVING IS NOT JUST ABOUT MAKING A DONATION - IT'S ABOUT MAKING A DIFFERENCE

V. BALAKRISHNAN CHAIR LAUNCH - 15th JULY 2022

Indian Institute of Technology Madras (IIT Madras) launched the V. Balakrishnan Institute Chair on 15th July 2022 to focus on research and teaching in the areas of Natural Sciences, Mathematics, and theoretical foundation of Engineering.

The Chair was named in honor of Prof. V. Balakrishnan, a former faculty of IIT Madras and an Indian theoretical physicist who has worked in several fields and areas, including particle physics, many-body theory, and the mechanical behavior of solids, dynamical systems, stochastic processes, and quantum dynamics. He is an accomplished researcher who has made important contributions to the theory of an elasticity, continuous-time random walks, and recurrences in dynamical systems.

Prof. V. Kamakoti, Director, IIT Madras, said,

"Prof. V. Balakrishnan is one of the greatest teachers and researchers who had served in IIT Madras. He Is also the most loved, respected, and adored faculty of the Institute. I congratulate Prof. Sarit Kumar Das for being the first occupant of this illustrious Chair."

Dr. Satish Ramakrishna, Managing Director and Chief Risk Officer, Two Sigma Investments, said,

"Prof. V. Balakrishnan is intensely analytical and is a great communicator of a rational approach to life, which is an approach followed by intelligent and purposeful people. The occupants of the Chair have a high mark to aspire to."

Prof. V. Balakrishnan, Professor Emeritus, said,

"Based on my experience I learned to never presume that when you know something, you know about it completely. You should also never presume that everybody should know about it too. As a teacher, I learned to put myself in the shoes of the students. I am extremely optimistic about the future of IIT Madras. There has been a tremendous change in the Institute in the last 40 years. The rankings have improved, thanks to the efforts of the various stakeholders of the Institute."

Photos from the event:

A unique initiative by the Office of Alumni and Corporate Relations:

Shaastra Magazine

Shaastra, published by the Indian Institute of Technology Madras, is the first mass-circulation science and technology magazine from an Indian educational institution. The bimonthly magazine aims to bring a solution-driven perspective to developments in science and technology, both at home and overseas, as well as their impact on society.

Supported by the 50,000 alumni of IIT Madras, Shaastra fills a long-felt need for a validated source for in-depth reporting and analyses on current research. Put together by a professional team of journalists, it is written in a form that is accessible and engaging to a general reader. It is intended to serve as a platform to enable informed conversations between industry, academia, and policymakers.

Volume 01 Issue 01 Jan-Feb 2022

Volume 01 Edition 03 Sep-Oct 2021

Volume 01 Edition 02 Jul-Aug 2021

Volume 01 Edition 01 May-Jun 2021

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THANK YOU FOR YOUR SUPPORT

Mrs. RAJESWARI & Dr. SATISH RAMAKRISHNA AND FAMILY!

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 relations with IIT Madras and how it has remained steadfastly committed to academic and research excellence since the time of your connection. 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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