



Indian Institute of Technology Madras & University of Sydney workshop series

IIT Madras - University of Sydney Translational Health Science

The objectives of the workshop are to:

- Establish a platform for research for the development of interventions at the point of care using modern engineering & technology approaches to address fundamental health and medical issues, as well as providing a vision for transformational change in medicine, health and engineering (relevant to both India and Australia).
- Promote two-way knowledge sharing and transfer at the intersection of the life sciences, physical sciences & engineering, and to develop a new generation of clinical medicine.
- Facilitate conferences, meetings or workshops on the Research Themes.
- Lead to research grant applications and publication of high impact research papers.

Workshop aims:

- The purpose of the workshop is to develop new collaborative projects and engage new researchers.
- Develop new collaborations and joint activities under the broad rubric of biomedical engineering, bioengineering and health and medicine.
- Enable the participants to network and deepen relationships with international colleagues.

Invites: Researchers and staff from the University of Sydney and IIT Madras

Workshops to run over two days.

Date: Monday 15th

Time: 3.00 – 6.00pm AEST

9.30 – 12.30pm IST

Tuesday 16th March

Date: Tuesday 16th

Time: 3.00 – 5.30pm AEST

9.30 – 12.00pm IST

15 min presentation followed by 5 mins discussion:

3 min thesis presentations

| March 15 | |
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| 3.00 – 3.10pm AEST 9.30 – 9.40am IST | Welcome Address Prof. Raghunathan Rengaswamy, Dean Global Engagement, IIT Madras Prof. Kathy Belov, Pro Vice-Chancellor, Global Engagement, University of Sydney |
| Session 1: Sensing and Medical Devices | |
| 3.10 – 3.30pm 9.40 – 10.00am | Prof Antonio Tricoli, Faculty of Engineering, University of Sydney Multi-Scale Engineering of Miniaturized Biosensors for Point-of-Care and Wearable Diagnostics ECR 1: Monalisa Ghosh Dastidar, Research School of Chemistry, ANU, Australian National University <i>Nanoscale Engineering of Glycated Albumin Biosensors for Better Management of Diabetes.</i> |
| 3.30 – 4.00 pm 10.00 – 10.20am | Prof. Prem Bisht, Department of Physics, IIT Madras Activities in Sensing and Imaging at IIT Madras ECR 2 Tulika Agrawal: <i>Gold Nanoparticle Embedded Microcavity for Sensing Applications</i> ECR 3: Vijay Sagar: <i>Deep tissue imaging and sensing with heteroatoms co-doped graphene quantum dots"</i> |
| 4.00 – 4.15 pm 10.20 – 10.40am | Dr. Amandeep Kaur, Faculty of Medicine and Health, University of Sydney Fluorescent approaches for understanding amyloid aggregation |
| 4.15 – 4.30 pm 10.40 – 11.30am | Dr. B. N. Shivananju, Dept of Electrical Engineering, IIT Madras Two-dimensional Materials based Optical Biochemical Sensors |
| 4.30 – 5.00 pm | Dr. Shanti Bhattacharya, Department of Electrical Engineering, IIT Madras Generation of Complex Light for Imaging Applications ECR 4: Bagath Chandraprasad: <i>Single Step Phase Extraction for Quantitative Phase Imaging</i> ECR 5: Guruvaiah Yerragadda: <i>Generation of Airy Beams for Light Sheet Microscopy</i> |
| 5.30 – 6.00 pm 12.00 – 12.30pm | Roundtable discussion, conclusion, and next steps Moderator: Prof. Prem Bisht, Department of Physics, IIT Madras |

| March 16 | |
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| Session 2: Bioengineering | |
| 3.00 – 3.15 pm AEST 9.30 – 9.45am IST | Prof. Wojciech Chrzanowski, Faculty of Medicine and Health, University of Sydney <i>Nano-enhanced high intensity focused ultrasound as non-invasive medicine</i> |
| 3.15 - 3.30pm 9.45 – 10.00am | Dr. Shantanu Pradhan, Department of Biotechnology, IIT Madras <i>Volumetric Imaging of Large Biosynthetic Tissue Constructs</i> |
| 3.30 - 3.50pm 10.00 – 10.20am | Dr. Athi Narayanan, Department of Biotechnology, IIT Madras <i>Dynamic Imaging of Protein-DNA Assemblies Governing Bacterial Stress Response</i> ECR6: Bincy Lukose <i>FLIM-FRET: A probe to Explore Bacterial Stress Response Mechanisms</i> |
| 3.50 - 4.10pm 10.20 – 10.40am | Dr Yogambha Ramaswamy, Faculty of Engineering, University of Sydney <i>Tailoring biomaterials to manipulate cell functions</i> ECR 7: Matthew Hadden <i>Hydrogels platforms to understand disease progression</i> |
| 4.10 - 4.25pm 10.40 – 10.55am | Dr. Gurvinder Singh, Faculty of Engineering, University of Sydney <i>Functional magnetic nanoparticles for Bioengineering</i> |
| 4.25 - 4.40pm 10.55 – 11.10am | Dr. Daniele Vigolo, Faculty of Engineering, University of Sydney <i>Modulating the properties of biocompatible materials via microfluidic thermophoretic transport to control cellular activity</i> |
| 4.40 – 5.30pm 11.10 – 12.00pm | Discussion and Next steps Moderators: Prof. Prem Bisht, Department of Physics, IIT Madras Prof. Wojciech Chrzanowski, Faculty of Medicine and Health |