

STEM ENRICHMENT 3 DAY INTENSIVE CONFERENCE

February 17, 18 - Flinders Bedford Park

February 19 - Flinders Tonsley Precinct

THESE 3 EXCITING DAYS INCLUDE:

- STEM enrichments for year 9 girls.
- STEM skills development for teachers.
- Industry connect talks, tours, moderated round table discussion.
- Women in STEM Breakfast, on day 2 of the conference.

With a focus on being able to present and interpret science, students will be able to choose from 12 interactive workshops that allow them to explore the world of STEM, learning skills in the area of Physics, Engineering, Design and Technology.

Announcing that we will also offer scholarships up to \$150 per students from Regional schools - those are situated 100kms always from Flinders.

PLENARY SPEAKERS INCLUDE:



PROFESSOR LISA HARVEY-SMITH

Australian Government's Women in STEM Ambassador and a Professor of Practice at The University of New South Wales.

Lisa's role is to increase the participation of women and girls in STEM (science, technology, engineering and mathematics) studies and careers in Australia by driving systemic and cultural change. As an astrophysicist, her research interests are in the birth and death of stars, cosmic magnetic fields and supermassive black holes. Professor Harvey-Smith serves on the Australian Space Agency's Advisory Group and previously led a team of 30 scientists and engineers at CSIRO developing the Square Kilometre Array – a next-generation radio telescope that will survey billions of years of cosmic history. She is author of the popular science books *When Galaxies Collide*, *The Secret Life of Stars* and *Under the Stars: Astrophysics for Bedtime*.

Plenary Talk Title - 'A career in astrophysics'

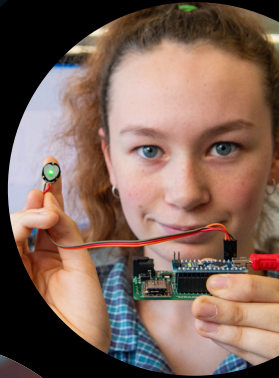
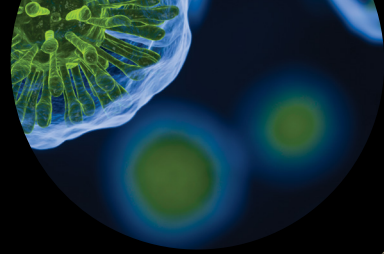


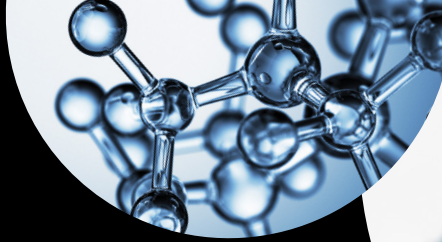
PROFESSOR MADHU BHASKARAN

Multi-award winning electronics engineer and innovator.

Madhu has won several awards and fellowships for her research including two competitive Australian Research Council fellowships. She has been named as one of Top 10 Innovators under 35 for Asia (MIT Technology Review 2016), won the 2018 Batterham Medal, and 2020 Frederick White Prize. Madhu co-leads the Functional Materials and Microsystems Research Group at RMIT University. Her research interests include functional oxide thin films, wearable technologies and stretchable electronics. Besides research, Madhu has a keen interest in gender equity and research training and has held leadership positions to advocate for the next generation.

Plenary Talk Title - Collaboration and diversity spark innovation





OUR INTERACTIVE HANDS-ON WORKSHOP THEMES/TITLES ARE:

- **Physics** - Hot optics and aMAZing lasers – Dr. Olivia Samardzic (Lead)
Dr. Alex Sabella, Dr Ben Sparkes and Lily Taylor from Defence Science and Technology (DST).
1. Hot Optics (Thermal Camera Activities)
2. Laser Maze
3. 3D Phone Holograms
- **Engineering (Technology)** - Mars Exploration Zumo-robot Mission, Dr. Sherry Randhawa, College of Science & Engineering (CSE).
- **Engineering (Bio-Medical)** - The Impulse Challenge: Rehabilitation and Motion Analysis Research Lab: Dr. David Hobbs (Lead) College of Science & Engineering (CSE).
- **Physics (Problem Solving)** - Building the World's Simplest Electric Motor – Dr. John Debs, ANU, Canberra.
- **Physics:** Physics Random Experiments - Physics Teacher Jason Dicker, Tasmania.
1. Which cools fastest? Blackbody Radiation
2. Measure the speed of light
3. Measure the speed of sound
- **Physics:** Light and its applications Dr. Ben Sparkes (Lead) IPAS and OzGrav groups, University of Adelaide.
1. Light Sources and Colours
2. Laser Radio
3. Gravitational Waves
- **Physics:** Gravitational energy conservation and transfer - A/Prof Liz Angstmann, University of NSW.
- **Chemistry** - Redox reactions - Professor Claire Lenehan and Dr. Sue Pye (Lead), College of Science & Engineering (CSE).
- **Industry Tours** - Zeiss
- **Physics lab tour** - Flinders Microscopy and Microanalysis - Professor Sarah Harmer, College of Science & Engineering (CSE).

TEACHER SKILLS DEVELOPMENT WORKSHOP SESSIONS INCLUDE:

SESSION 1

19th February

10am - 11am

Title: Contextualizing science
A/Prof Liz Angstmann
UNSW, Sydney.

SESSION 2

19th February

11.30 - 12.30am

Title: Cosmology for teachers
Jason Dicker, Launceston College,
Tasmania

SESSION 3

19th February

1.15 - 2:15pm

Title: Special Relativity and
Magnetism
Jason Dicker, Launceston
College, Tasmania

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 **STEM AT FLINDERS**