

24th Australian Institute of Physics Congress

Education Day: Encompassing University and high school level Physics Education

Thursday 15 December

[Registration fee](#) 1 day: \$110

Session 1 | 11:00-12:30

Area: Education in Physics

Title: Igniting passion for physics: students, teachers and academics

Format: 15 minutes Talks from experts in the field + Q&A. University professors & high school teachers

Description: Excitement in Physics is infectious, and it draws people in. For example, Paul Hewitt became known for his passionate and fun way advocating for physics and inspiring many students. Dianna Cowern, an MIT graduate, became a YouTuber known as 'Physics Girl'. Brian May, the league guitar player for the band Queen and a Ph.D. in Astrophysics, worked in interstellar gases, measured the rate of the rotation of galaxy.

How can we as teachers become passionate and how can we inspire our students?

Presenters:

1. *Dr Laura H Greene - Chief Scientist at National High Magnetic Field Laboratory at Tallahassee, Florida*
 2. *Professor Derek Abbott - Electrical and Electronic Engineering - The University of Adelaide*
 3. *Zahra Pirvali – STEM coordinator and Senior Physics teacher at University Senior College, The University of Adelaide*
 4. *Professor Eva Bezak - Medical and Nuclear physics - University of South Australia*
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Session 2 14:00-15:30

Area: Teaching and Learning Modern Physics

Title: Quantum Physics and / Relativity

Format: 20 minutes workshops by the university professors

Description: Modern physics requires an adequate use of models and a deep conceptual understanding of the underlying abstract ideas. The Physics curriculum in high schools and introductory university courses contains, at best, a passing reference to 20th Century physics. How have teachers and students adapted their conceptual frameworks towards incorporating the highly non-classical issues of modern physics? Do they appreciate the topics of interest to contemporary physicists, the contribution of physics to modern thought or the connection between the Physics they learn and modern technology? Examples include the Laser, Quantum technologies, LED, Large Hadron Collider, gravitational waves,

How can we stimulate greater interest and encourage our students to pursue their studies of physics further?

Presenters:

1. *Professor Peter Veitch - Leader of the University of Adelaide node of the ARC Centre of Excellence for Gravitational Wave Discovery (OzGrav), The University of Adelaide*

Topic of Presentation: *Gravitational Waves*

2. *Professor Halina Rubinsztein-Dunlop – Australian Institute for Bioengineering and Nanotechnology , quantum computing and other advanced device related applications, The University of Queensland Australia*

Topic of Presentation: *Upcoming Quantum Technologies*

3. *Prof Kishan Dholakia - ARC Laureate Fellow at the Institute for Photonics and Advanced Sensing (IPAS) - The University of Adelaide*

Topic of Presentation: *Quantum Sensing*

Session 3 16:00-17:30

Area: Space

Title: Is Australia ready for the next generation of space innovations?

Format: Panel consisting of some experts in the field and a facilitator

Description: Will Australia be ready for the next generation of space innovations?

Space science and technologies is one of the most rapidly-growing, highly-diverse areas in Australia that needs new people in it. It's a growth industry and we need Australians to contribute to it. That takes focus and investment. Space is more accessible now than it has ever been. We can have small and large private companies building and launching systems into space that can monitor the Earth and space environments. Australia would benefit from strong investment in space science research and development. One of the most exciting things about space science is the amazing technologies and applications that we can create to improve life on Earth. The Australian Academy of Science has released a 10-year plan for space science, calling on the federal government to prioritise innovation while protecting our sovereign interests.

Each panellist will present their views in the context of their field and address:

Will Australia be ready for the next generation of space innovation? Is our current education system capable of serving this future need? What will need to change in the education system? And how do we make this happen?

Panellists:

1. *Associate Professor Alice Gorman – Space Archaeology and Exploration- Flinders University*
2. *Dr Saeed Salimpour- Post-Doctoral Researcher/Former High school teacher - Astronomy Education Research Coordinator - Deakin University*
3. *Professor Richard Turner - Serial Entrepreneur including Founder ZEN Energy | Author of "The Essential Entrepreneur" Book & Online Platform | Deputy Chair of Premier's Climate Change Council | Board Member*
4. *Nate Taylor - Australian Space Agency*
5. *Facilitator: Elizabeth Pearce - Australian Space Agency*

Associated Events

Physics Education-themed High Tea

The Physics Education-themed High Tea will include a keynote presentation targeting high school teachers, university physics educators, Ph.D. (Phys. Ed) students and other congress delegates. Organised by the Physics in Education Group (PEG), the High Tea will provide an opportunity for stakeholders to discuss the nexus between high school physics teaching and university physics courses.

Registration fee: \$30

To attend, add the Physics Education High Tea to your [registration for the Congress](#).