

PHYSICS FOR AN EDUCATED POPULATION

Physics underpins our understanding of the world around us. Many physics based technologies have led to the high standard of living we enjoy. From telegraphy to the internet, electronic valves to integrated circuits, and X-rays to MRI scanners, it has been physicists and engineers who have made the key advances.

We need a population educated in science. Australians must be able to participate in debates about issues confronting our society, such as the impact of global information and trade, climate disruptions, food and energy security. A population that is literate in science, in particular physics and mathematics, will have many opportunities in the future.

Our primary and secondary education systems are key to securing such basic knowledge for all. At the same time, a strong tertiary sector is essential for those who want to discover new knowledge, and to use physics to develop new ideas and technologies for the betterment of humankind.

PHYSICS TEACHERS FOR THE NEXT GENERATION

Australia has the opportunity to embrace the example set by many wealthy economies by:

- ▶ reversing the decline in the uptake of physics by students at secondary level
- ▶ increasing the participation rate of female students in physics studies
- ▶ training and supporting more teachers with higher level skills
- ▶ linking teachers more closely to current physics applications and research.

These actions promise great advances for our society and our economy, and deserve immediate attention.

We need to attract enthusiastic, inspiring and able graduates to teach physics, and must ensure appropriate recognition for their contributions. We need to empower physics teachers to teach with passion based on their own positive experience. They must be provided with the resources to allow them do their job well.

The *Physics Decadal Plan* suggests that secondary school teachers are trained in physics to three years above the highest level at which they are required to teach.

Such well equipped teachers will be able to inspire students through physics, at school and beyond.

EXCITING CAREERS FOR SWITCHED ON STUDENTS

Australia deserves a more lively high-tech industry sector, following the path of other modern economies. Young Australians seek employment opportunities that capitalise on science training.

Students are aware that there are jobs using knowledge of physics on a day-to-day basis in teaching, the universities, CSIRO, ANSTO and similar organisations.

Not so visible is the strong demand for physics graduates – women and men – from employers in industry and government who do not require a research level knowledge of physics. Physics graduates are in demand for their highly developed skills in critical thinking, abstract problem solving, and quantitative analysis.

This message needs to be promoted at primary and secondary level to help students and their parents to recognise that studies in physics will lead to exciting, challenging and fulfilling careers.

Opportunities include: the resources sector for the processing and interpretation of large geophysical datasets; hospitals seeking medical physicists for managing complex imaging and diagnostic techniques; and many engineering and communication companies which plan, install and operate the latest technology.

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The National Committee for Physics is a committee of the Council of the Australian Academy of Science. The broad aims of the committee are to foster physics in Australia, to link the Academy to Australian physicists and relevant scientific societies, and to serve as a link between Australian and overseas physicists, primarily through the International Union for Pure and Applied Physics and the International Commission for Optics.

The Council of the Australian Academy of Science biennially seeks the advice of the National Committee for Physics, in consultation with the National Committee for Chemistry, on the award of the Geoffrey Frew Fellowship. Fellowships are awarded to distinguished overseas scientists to participate in the Australian Spectroscopy Conferences and to visit scientific centres in Australia.



**NATIONAL
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FOR PHYSICS**
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See the National Committees
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