



Australian Government

AUSTRALIA'S CHIEF SCIENTIST

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**ANU HEAVY ION ACCELERATOR FACILITY SYMPOSIUM
ON FUNDAMENTAL AND APPLIED SCIENCE**

10 MINUTE SPEECH

ANU, CANBERRA

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******* CHECK AGAINST DELIVERY *******

- Good morning, it is a pleasure to be here.

- **IMPORTANCE OF THIS FACILITY**
 - Only nuclear physics university program in Australia
 - A source of international collaboration
 - 2500 hours of beamtime for over 50 international users (2009-12)
 - MOUs with UK, USA, Europe and two under development with China and Brazil
 - New users recently from France, USA, Germany, Japan, China

- I understand there are more than 120 international guests here today.

- **IMPORTANCE OF COLLABORATION**
 - Collaboration benefits all parties – between 2002-10 citations per paper nearly tripled if there were two or more authors¹.
 - In 2011, 35% of all articles published in international journals were internationally collaborative.
 - Between 2002 -2010, internationally co-authored publications in Australia more than tripled.²

¹ HAS

- Now, more than 40% of Australian publications are co-authored with international collaborators³
- As a country, our top collaborating partners are in order: the US, the UK, China, Germany, Canada, France⁴.
- They are also the countries with which this facility has strong links.

- **NEED FOR STRATEGIC APPROACH**

- If Australia wants to be able to continue to collaborate and compete with these nations, we must align our research effort both with our own interests, and with the rest of the world. *We need a strategic approach to our investment.*

- This is why the government established the Australian Research Committee, which I Chair.

- **NRIP**

Our first task was to develop a National Research Investment Plan to provide a strategic framework to help government make decisions about:

- How much funding should be given in certain areas

² HAS

³ Thomson Reuters

⁴ HAS

- How to balance research investment between basic and applied research
- How to balance investment between universities, industry and government agencies.

- **SOCIETAL CHALLENGES**

- Late last year we began work to determine the major societal challenges facing Australia. From these we can determine what our research priorities should be.
- Much of the research conducted here at the HIAF contributes to these challenges - Materials, Environmental Sciences, Waste Management, Defence, Climate Change

- **BASIC RESEARCH**

- NRIP does not suggest that all research funding should go to priorities.
- Must be room for curiosity driven, transformative, paradigm-shifting research
- This facility performs both basic and applied research – Quantum Physics

- **STATE OF NUCLEAR SCIENCE**

- However, nuclear physics is a vulnerable area for Australian science.

- Australia produces only 1.3% of the world's publications on nuclear physics (below average for Australian science as a whole and physics in general)
- However, while the *quantity* of research in nuclear science might be small, the *quality* of our research is high.
 - Our performance in quality is on par with, and even slightly higher than the EU 15⁵.
 - The average number of citations per paper between 2001-2011 was 4.87 for the EU-15, and 6.23 for Australia.
 - On the percentage of publications being cited we performed better than the EU 15 every year between 2001-2011 (Avg: EU-15 72%, AUS 78% of papers cited)
- Although our quantity is small, the quality of our research is up there with the best.
- This facility is world-class and its contribution to the quality of our research cannot be overlooked. The high level of collaboration, the impact it is making in teaching students

⁵ EU 15 includes: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom.

and creating research opportunities is second to none.

- I am pleased to be here today to support this facility, and hope the discussions had at this symposium will continue to support Australia on its path to scientific excellence.

NOTE: The category for Thomson Reuters is Nuclear Science and Technology, not Nuclear Physics.