13 May 2024

Re: Submission to the Policy Review of the National Competitive Grants Program

The *Australian Institute of Physics* is the national professional body for physics in Australia. We welcome the opportunity to provide feedback on the Policy Review of the National Competitive Grants Program. Physicists in Australia are engaged in all aspects of the research described in the *Discussion Paper*. They work collaboratively across the full spectrum of basic and applied research, in academic and industrial settings, in anything from small teams to large international collaborations with thousands of participants. In the following, we briefly comment on the issues raised, most specifically relating to Questions 1 ("guiding objectives…"), 2 ("advancement of knowledge" and "translation or commercialisation") and 5 ("collaboration between disciplines").

We agree that research translation is critically important and that mechanisms to promote translation should be further developed. However, we also feel that the relationship between basic and applied research is often misunderstood. It is impossible to develop translation purely through specific translational funding schemes, since funding agencies need to first develop a world-leading basic research sector in order to have something to translate. A similar statement applies to multidisciplinary research: excellence in individual disciplines is required to enable the full potential of advances across traditional boundaries. Therefore, if translation and multidisciplinary work is to be successful, funding cannot come at the expense of basic research. Critically, increased ambition in these areas necessitates an overall increase in research funding. It is already the case that the basic research sector in Australia needs to be strengthened to remain competitive with other nations.

To give a concrete example, the development of Global Positioning Systems (GPS) relied on breakthroughs that were first made by Einstein in the early 1900s, leading to the theories of special and general relativity. These remained highly esoteric and poorly understood for many decades afterwards. The first practical applications for defence came in the 1950s, with full civilian use only coming in the 1990s. Today, all smartphones rely on GPS technology for their navigation and location systems. The key takeaway is that basic research funding needs to be sustained over many decades before any practical translation can be expected and, even at the point of commercialisation, continued funding in basic research is required to drive our next advances and improve commercial outcomes. Without such funding, there is no possibility for future translation.

– on behalf of the Australian Institute of Physics National Executive –