

Draft 2016 National Research Infrastructure Roadmap

Submission Template

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The National Committee for Physics (NCP) of the Australian Academy of Science provided extensive feedback on the Capabilities Issues Paper in September, and we are very pleased to see that the Draft 2016 Research Infrastructure Roadmap is consistent with many of the views reflected in that submission.

In this submission, the NCP would like to highlight the importance of a number of the Key Recommendations in the Draft Roadmap to the ability of the Physics community in Australia to continue to contribute to advancing human knowledge, to developing the economy, and to educating future generations:

Recommendation 1: Focus areas

The NCP supports the recognition of “Astronomy and Advanced Physics” as a focus area, as physics is an integral part of astronomy. That said, there are many high impact areas of physics that do not have any overlap with astronomy. In all cases, the need is for high quality instrumentation, and competing bids will require careful evaluation and peer review.

Recommendation 5: Skilled Workforce

This is a priority for many of the facilities essential to research in physics. As an example, a fabrication or analysis facility depends completely on the skill of its workforce, which must be trained for many years and is not easily replaceable. Funding for specialist support for these facilities is an issue that has not been well addressed in the past.

Recommendation 7: International Engagement

Access to international facilities that are beyond the ability of any one country to fund is essential if Australia is to be represented in a number of key areas of research in physics. A coordinated approach to funding of membership of international collaborations, and a funding scheme to facilitate international collaborations, are essential to ensure Australia can engage in global initiatives.



In addition, the NCP wishes to suggest the following additions:

Table 2 “Alignment of National Science and Research Priorities and Focus Areas”

We are pleased to note that Astronomy and Advanced Physics is attributed as contributing to 5 of the 9 Focus Areas. It should be noted that in most cases, the contribution is from physics. It should also be noted that in relation to the priority “Resources”, there is a significant contribution from physics graduates who find employment with major companies in the resources sector in geophysics roles. In addition, physics contributes to the development of new capabilities and instrumentation in characterisation and advanced fabrication.

Table 7 “Priority Areas for National Research Infrastructure – Astronomy and Advanced Physics”

With the recent discovery of gravitational waves, and the insights that gravitational wave detectors are now providing into black hole astrophysics, the NCP recommends that gravitational wave detection be included under “Astronomy Infrastructure”. Whilst the discovery of gravitational waves was made with the two LIGO detectors in the US (with significant involvement by Australian collaborators), there is a very strong case for a “southern hemisphere” gravitational wave laser interferometer to allow a directional capability for an international network of future detectors.

The NCP strongly supports funding for “Precision Measurement”, in recognition of the leading role that Australia is playing in areas of quantum technology and quantum measurement.

