



Background and Rationale for the Workshop

From global sustainability to renewable energy to the origins of life in the cosmos to forecasting and potentially mitigating economic upheavals, the largest scientific challenges—and those that may hold the greatest opportunity for transformative technological solutions into the 21st century—are interdisciplinary in nature. The skills required from a new generation of trained scientists and engineers to address these challenges have been and continue to be broadly discussed and debated.

The National Academy of Sciences (NAS) Committee on Science, Engineering and Public Policy (COSEPUP), seeing the mounting challenge, took a lead in addressing the issue in 1995.¹ The NAS report was followed by a series of other works, all of which emphasize the importance and value of interdisciplinary graduate training in the form of broadened research and educational experiences both as a response to more complex global challenges and to enabling broader career opportunities for graduate students.²

In 1998, a distinctive program was developed by the NSF to address these issues: the Integrative Graduate Education and Research Traineeship (IGERT) program. In the decade since its inception, IGERT has funded over 4800 interdisciplinary science, technology, engineering, and mathematics (STEM) trainees in 98 institutions. The impact of IGERT on

the first three cohorts was evaluated and the results published in 2006.³ In addition, output from all IGERT projects from 2006—2007 was summarized in an IGERT Annual Report.⁴ An evaluation of the impact

address our larger global interdisciplinary scientific challenges.

It is now nearly 14 years since the 1995 COSEPUP report, and many other reports and publications on

Discovery increasingly requires the expertise of individuals with different perspectives – from different disciplines... working together to accommodate the extraordinary complexity of today's science and engineering challenges.

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of IGERT on graduated trainees and their careers is underway. Other reports have cited IGERT—and the interdisciplinary training the students receive—as an example of the type of program that could positively impact and begin to

interdisciplinary training and research have followed it.⁵ But many institutions, as well as the federal funding agencies on which these institutions rely for funding, still struggle with developing and implementing appropriate and supportive structures,



procedures, and recognition and reward systems to enable interdisciplinary research and education.

It is with this history and at the 10th anniversary of the inception of the IGERT program as a backdrop that the workshop from which this report is drawn was convened. The purpose of the workshop was to gain insights from the country's leading institutions that have had at least one IGERT award on how to capitalize on the value of

interdisciplinary STEM research and graduate education for the economic and societal health of the country, and to determine what is required for faculty, graduate students, academic institutions, and the research enterprise itself to thrive and contribute to U.S. competitiveness to an even greater extent into the future.