

Cyberinfrastructure Enabled Integration of Research and Education

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Abstract

Due to the advancement in information technology, availability of mass data storage devices, and networking facilities, there is significant impact on the ways science and engineering are practiced and taught. In order to efficiently harness the benefits of the changing infrastructure, there is a need to systematically inculcate cyber-awareness amongst diverse group of people, including students, educators, scientists, engineers, and even the general public. In this presentation, the educational aspect of our NSF CAREER grant and the impact cyberinfrastructure can have in stimulating learning amongst diverse target groups with varying cognitive capabilities is highlighted. By providing easy access to science and technology through digital information and computational tools, cyberinfrastructure can be used effectively to attract students and underrepresented groups towards a career in science and engineering. Similarly, school teachers can also take advantage of cyberinfrastructure resources for their professional development and bringing contemporary science/technology to classrooms. For combustion science in particular, since it is multidisciplinary by nature, improved communication tools and digital storage, and accessing capabilities will enhance collaborative research amongst experts in various sub-disciplines and provide effective integration of research and education. Learning experience and training of students in information technology enabled science can be enhanced by designing curriculum exposing students to databases, virtual experiments, and simulation tools.