

John and Janet  
**CREIGHTON**  
DISTINGUISHED LECTURE

## International Partnerships for a Knowledge Economy

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Lecture at 3:10 p.m  
Bryan Hall Theatre

India's technology needs range from nuclear and space to rural, and we require a knowledge-driven economy to meet the needs. Thus, India should have the ability to develop new knowledge and the ability to appropriate knowledge developed in other countries. We need an *advanced technology superstructure*, and also the *foundation* of higher education and basic research (including what I have called 'Directed Basic Research').

There is increasing global mobility of students and scientists. India participates in mega-science and mega-technology international projects, like the Large Hadron Collider in CERN and the International Thermonuclear Experimental Reactor in Cadarache. The Indian Space Research Organization, using its robust Polar Satellite Vehicle, has successfully launched 74 satellites from 20 countries to date, while using the French launch vehicles for its geostationary satellites.

In nuclear technology, import of two 220 MW reactors from Canada was followed by the development of indigenous 220MW, 540 MW and now 700 MW reactors. Similarly, the Fast Breeder Test Reactor in Kalpakkam was built through French collaboration, but the soon-to-be-commissioned 500 MW Prototype Fast Breeder is of indigenous design and construction.

The Indian Synchrotron Radiation Source INDUS-2 at Indore is working very well. But Indian scientists also have access to outside Synchrotron Radiation Sources. The Indian high-speed Research & Education Network is connected to the E.U. Network, and will be soon connected to Internet-2 of the U.S.

In February 2016, there was the news about the first-time detection of '*gravitational waves*', predicted by Einstein's Theory of Gravitation. This discovery was made by two Advanced LIGO (Laser Interferometric Gravitational Waves Observatories) detectors in the U.S. The LIGO-India project, approved *in-principle* by the Indian Government, will lead to the establishment of the third Advanced LIGO detector and will help pinpoint the source.

And there are many other examples. International partnerships in science and technology are essential today in frontier areas and for sharing advanced facilities and data.

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