

**DEGREE AWARDING CEREMONY UNDER
FACULTY OF SCIENCE
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ADDRESS BY

GUEST OF HONOUR

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RESURGENT INDIA :
OPPORTUNITIES AND CHALLENGES IN SCIENCE

PROFESSOR KANKAN BHATTACHARYYA

In the last few decades, India, along with China, has attracted tremendous international attention because of the very fast growth of science, technology and economy. It is being predicted that by 2025 China will surpass USA and India will be closer to USA. All these happened because of various factors- availability of large number of young people (below 25 years), growth in science and technology and social respect for education in India. This does not mean that India has gone ahead of Europe or Japan. However, it may be noted, many of the fruits of modern science and technology is now available to larger section of Indian society. We may mention mobile phones or high quality medicines. I am deliberately not mentioning IT because computers are accessible by fewer number compared to mobile phone.

While many may think these are technologies, one must not forget that basic science is the mother of all technologies. The basic methodology synthesis of medicines is developed by chemists with a combined effort of organic, inorganic, physical and biochemists. Then it is scaled up by an industry. There are large number of materials developed by combined efforts of physicists, chemists and engineers. Most recently, there is a growing concern about pollution. Lot of fundamental research is needed for developing environmental

friendly “green” technologies. About 100 years ago Haber perfected ammonia synthesis by applying the principles of chemical equilibrium.

One of the indicators of progress in basic science is the number of papers. World-wide the number of papers are growing at a rate of 4%. In china the rate of growth is 20% and in India it is 10%. China has already become number two after USA in terms of number of papers per year. India has climbed up to 9th position from 13th rank 5 years ago. If we maintain this rate we will be among the first 5 countries of the world by 2020. However, compared to China there is greater international respect for India’s scientific creativity because of the glorious tradition set by JC Bose, Ramanujan, CV Raman, Khurana, Chandrasekher, Venky Ramakrishnan (2009 Nobel Laureate), SN Bose and others. Even US President Obama has said that if US students do not study hard all the jobs will be taken up by Indians and Chinese people. There is now a serious dearth of school and college teachers in USA particularly in mathematics. All these suggest greater opportunities of Indian students of basic science.

CV Raman once observed that **“Indian mind is not inferior, what we lack is courage and a spirit of victory. If that indomitable spirit were to arise nothing can hold us from achieving our rightful destiny”**. India will do better if generate more confidence and courage on ourselves and pursue our own ideas rather than to imitate things done in “foreigners.”





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