



First Laureate Innovation



- **Name:** Prof. Chintamani Nages Ramachandra Rao
- **Nationality:** Indian
- **Date of Birth:** 1934
- **Position:** National Research Professor and Linus Pauling Research Professor - Immediate Past President TWAS-Chairman to the Scientific Advisory Committee to the Prime Minister, Government of India
- **Scientific Affiliation:** Jawaharlal Nehru Centre for Advanced Scientific Research, India

Project Title: Some important aspects of the chemistry of nanomaterials

Abstract:

Nanocrystals, nanowires, nanotubes and nanofilms are some of the important classes of nanomaterials. Chemistry has played a major role in the synthesis and modification of these nanomaterials. In particular, the synthesis of a large variety of nanocrystals and nanowires would have been impossible without using chemical techniques such as solvo-thermal synthesis. The uses of templates and ionic liquids have been found useful for the synthesis of inorganic nanomaterials. The liquid-liquid interface enables the generation of ultra-thin films of materials, often in single crystalline form. After a brief-survey of some of the important synthetic strategies, solubulization, functionalization and assembly of nano-structures, as well as a few of the novel chemical approaches employed by us in the last few months will be presented. These will include the use of fluorous chemistry wherein nanocrystals, carbon nanotubes and other nanostructures are extracted or solubulized in the most nonpolar medium possible, and the use of click reaction and other methods employed for assembling nanostructures. Results obtained recently on chemical investigations of graphene will be discussed.

Biography:

Prof. C.N.R. Rao is the National Research Professor of India, Linus Pauling Research Professor and Honorary President of Jawaharlal Nehru Centre for Advanced Scientific Research in Bangalore. He is also a Professor at the Indian Institute of Science, Bangalore. He has published nearly 1400 papers and 41 books on various aspects of solid state and materials chemistry and spectroscopy. Prof. Rao's main research interest at present is nanoscience and nanotechnology. He is a member of a number of science academies of the world and has received various honours including highest science award of India. He has been a Visiting Professor of many universities including University of Oxford, University of Cambridge, Purdue University and University of California. He has received honorary doctorate degrees from 46 Universities. He is a founding fellow and past president of the Academy of Sciences for the Developing World (TWAS). He was earlier President of the Indian National Science Academy.