



## Third Laureate Applied Research



- **Name:** Dr. Vinu Ajayan
- **Nationality:** Indian
- **Date of Birth:** 1976
- **Position:** Senior Scientist
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**Project Title:** Nanoporous Carbons and Nitrides

### Abstract:

Nanoporous silica materials with ordered structure have received enormous attention in recent years because of their remarkable textural properties. The real challenge was to develop the mesoporosity in the materials including nitrides and carbons, as they possess some remarkable mechanical and conducting properties. The world first mesoporous carbon nitride (MCN) and boron nitride (MBN) with well ordered structure and tunable pore sizes have been prepared using nano hard-templating method. The materials exhibit excellent textural characteristics, which could offer great potential for the industrial applications. In addition, novel nanoporous carbon nanocage (CNC) with surface area of more than 1600m<sup>2</sup>/g and pore volume of 2.2 cm<sup>3</sup>/g have been synthesized using nanotemplating technique via “controlled pore filling method” developed by me. CNC shows very high adsorption capacity and selectivity for biomolecules and green tea components. I strongly believe that the CNC adsorbents could be used for efficient removal of hydrophobic toxic biomaterials, and therefore will have a great impact on biomedical fields and industry. This material has also been selected as the ‘NIMS material’ of the year 2006 and one of the most attractive 50 materials of Japan, and several industries have already signed agreement with our institute for the production of the material.

### Biography:

Dr. Vinu Ajayan is a Senior Scientist of National Institute for Materials Science (NIMS), Japan, and is holding the position of NIMS Ambassador to India. He was born on May 20, 1976 in Arumanai, India, where he had his basic education before joining the University for his Bachelors and Masters degree. He then went to University of Kaiserslautern, Germany, after registering his PhD at Anna University, India, to continue research work during 2001 to 2004. He moved to NIMS when he was given an International Center for Young Scientist (ICYS) award. In 2006, he started a research team with the Senior Scientist position at NIMS before becoming the first successful young research project leader for the Asian Research Development Programme for the period of 2007 to 2010. The area of his research is mainly the fabrication of novel nanoporous materials and their applications in adsorption, catalysis and fuel cells. He is the discoverer of CNC, MCN, and MBN nanoporous.