

Indian Scientist

Mr. Kamnio Chattopadhyay

Renowned Indian Materials Engineer



Born 3 March 1950

Kamnio Chattopadhyay is an Indian materials engineer and honorary professor at the Indian Institute of Science (IISc), Bengaluru. He is best known for his groundbreaking work in materials science, particularly in the discovery of decagonal quasicrystals, along with collaborators L. Bendersky and S. Ranganathan. His research has had a lasting impact on various fields, from nanocomposites to high-temperature alloys.

Achievements

Decagonal Quasicrystals: Chattopadhyay's major contribution is his discovery of decagonal quasicrystals in 1985. These materials have a unique atomic structure that do not repeat in a regular pattern, unlike traditional crystals.

Nanocomposites: His work on nanocomposites — materials that combine nanoparticles within a matrix — has led to materials with superior properties like enhanced strength, thermal conductivity, and electrical conductivity.

Research Areas

- **Phase Transformations:** Chattopadhyay studied how materials change their structure under different conditions, which is important for developing materials that can withstand extreme environments like space.
- **High-Temperature Alloys:** He developed alloys that maintain strength and stability at high temperatures, which are used in industries like aerospace and automotive engineering.
- **Bulk Metallic Glasses:** His research on metallic glasses — materials that are strong but also ductile — has led to innovations in manufacturing and engineering.
- **Nanostructured Materials:** His work in nanostructured materials, which are materials with structures on the nanometer scale, has contributed to advancements in electronics and optics.

Honors and Awards

- **Shanti Swarup Bhatnagar Prize:** He received India's highest honors for scientific research in 1995.
- **Lifetime Achievement Award:** In 2011, he was recognized by the Electron Microscope Society of India for his work in electron microscopy.

Chattopadhyay has published numerous scientific articles and books. He holds several patents related to advanced materials like high-impact solder alloys and nickel-aluminum-zirconium alloys.

Aluminum-Based Nano Eutectics is a book he authored.