Indian Scientist

Patcha Ramachandra Rao

Shanti Swarup Bhatnagar Prize in 1985

(21 MARCH 1942 – 10 JANUARY 2010)

Dr. Patcha Ramachandra Rao was an extraordinary Indian metallurgist, educator, and scientific administrator whose profound contributions shaped materials science for over four decades.

Born in 1942, his unique journey saw him serve as a student, faculty member, and eventually Vice-Chancellor at Banaras Hindu University, showcasing his deep commitment to academia and research.

A Career of Leadership and Breakthroughs

Dr. Rao's groundbreaking work includes being the first outside the USA to conduct experimental research on the **rapid solidification** of metals. This innovative technique cools molten metals incredibly fast, leading to the creation of **metallic glasses** and quasicrystals – materials with extraordinary properties vital for aerospace and electronics. He also spearheaded **biomimetic synthesis**, pioneering eco-friendly ways to create inorganic materials like hydrophobic apatite for bone grafts and dental implants, laying the foundation for green nanotechnology in India.

Dr. Rao's distinguished career included pivotal leadership roles, where he:

- Directed the **National Metallurgical Laboratory**, guiding crucial research.
- Served as **Vice-Chancellor of Banaras Hindu University**, initiating significant academic and infrastructure development.
- Became the **First Vice-Chancellor of the Defence Institute of Advanced Technology**, establishing vital programs.

Honours and Lasting Impact

Dr. Rao's immense contributions were widely recognised. He received:

- The prestigious **Shanti Swarup Bhatnagar Prize** for Engineering Sciences (1985).
- The **National Metallurgist Award** (2004).
- The **INSA Materials Science Prize** (1997).

He authored over 200 research papers, held numerous patents, and inspired countless students through his mentorship.

A fellow of every major Indian science academy and prestigious international bodies, Dr. Rao's legacy continues to shape materials science and inspire future innovators in India.