

Indian Scientist

Surindar Kumar Trehan

Shanti Swarup Bhatnagar Prize (1976)



4 APRIL 1931 - 9 SEPTEMBER 2004

Explore the fascinating work of Dr. Surindar Kumar Trehan, an Indian mathematical genius whose groundbreaking research helped us understand the swirling, magnetic universe. He was a true pioneer in **magnetohydrodynamics (MHD)**, a field that combines fluid dynamics with electromagnetism, providing insights into phenomena from stars to fusion energy. His profound contributions laid the foundational groundwork for modern plasma physics and astrophysics, establishing India's presence in these complex scientific domains.

Unravelling Cosmic Mysteries

Dr. Trehan's research was all about **stability**—understanding when things like magnetic fields in the Sun's corona or powerful cosmic jets remain stable, and when they might explode or unravel.

Dr. Trehan's legacy continues to influence fields from astrophysics to fusion energy research, proving that profound mathematical insights can unlock the secrets of the universe.

- He developed sophisticated mathematical tools to analyze the nonlinear stability of MHD systems, crucial for controlling plasmas in fusion energy research here on Earth and understanding distant stars.
- He also explored gaseous polytropes in magnetic fields, essentially simplified models of stars. His work showed how magnetic fields influence pressure and oscillations within these celestial bodies, offering critical insights into stellar structure and evolution.

His Legacy

Beyond his cosmic calculations, Dr. Trehan was a pillar of Indian academia.

- He received the prestigious **Shanti Swarup Bhatnagar Prize (1976)**, India's highest science honor, for his outstanding contributions to mathematical sciences.
- He served as Dean of the Faculty of Science at Panjab University and was a **CSIR Professor Emeritus**, shaping countless young minds. His leadership significantly boosted research and higher education in mathematics and physics across the nation.
- He also served as editor of the *Bulletin of the Astronomical Society of India*, enhancing the visibility of Indian scientific research globally.