

Raman Research Institute (RRI)

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About Raman Research Institute (RRI)

- It is an autonomous research institute engaged in research in basic sciences.
- Location: Bangalore
- The institute was founded in 1948 by Indian physicist and Nobel Laureate Sir C.V. Raman, with funds from private sources.
 - Sir C.V. Raman served as its director, carrying on his personal research until his demise in 1970.
- It was restructured in 1972 to become an aided autonomous institute receiving funds from the Department of Science and Technology of the Government of India.
- The Governing Council is the executive body of the Institute and conducts the administration and management of the Institute.
- Today, the main areas of research at the Institute are Astronomy & Astrophysics, Light & Matter Physics, Soft Condensed Matter, and Theoretical Physics.

What are ultracold atoms?

- The atoms whose temperatures are near absolute zero (zero Kelvin) are known as ultracold atoms.
- At low temperatures near absolute zero, atoms behave according to the principles of quantum mechanics rather than classical physics.

Key Facts about Quantum Mechanics

- Quantum mechanics is the science dealing with the behaviour of matter and light on the atomic and subatomic scales.
 - It explains how extremely small objects simultaneously have the characteristics of both particles (tiny pieces of matter) and waves (a disturbance or variation that transfers energy). Physicists call this the “wave-particle duality.”
 - It attempts to describe and account for the properties of molecules and atoms and their constituents—electrons, protons, neutrons, and other more esoteric particles such as quarks and gluons.
 - These properties include the interactions of the particles with one another and with electromagnetic radiation (i.e., light, X-rays, and gamma rays).
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Q1) What is Astrophysics?

Astrophysics is a branch of space science that applies the laws of physics and chemistry to seek to understand the universe and our place in it. The field explores topics such as the birth, life and death of stars, planets, galaxies, nebulae and other objects in the universe.

Source: [Indian scientists design algorithm that could open up the quantum world of atoms](#)

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