



# C R Rao will Receive the 2023 International Prize in Statistics

## Why in News?

Calayampudi Radhakrishna Rao, a prominent Indian-American mathematician and statistician, will be awarded the 2023 International Prize in Statistics, the equivalent of a Nobel Prize in the field.

## What are the Works of C R Rao?

- **Background:**
  - Rao's remarkable paper, **published in 1945** in the Bulletin of the Calcutta Mathematical Society, demonstrated **three fundamental results that paved the way for the modern field of statistics** and provided statistical tools heavily used in science today.
- **Theory:**
  - **The Cramer-Rao Lower Bound:**
    - Provides a means of **knowing** when a method for **estimating a quantity** is as good as any method can be.
  - **The Rao-Blackwell Theorem:**
    - Provides a means of **transforming** an estimate into an **optimal estimate**. Together, these results form a foundation on which much of statistics is built.
  - **The Information Geometry:**
    - Provided insights that **pioneered a new interdisciplinary field** that has flourished as "**information geometry**."
      - Information geometry is the study of the geometrical structure of families of probability distributions.

## What is the Significance of Rao's Contribution?

- His work on **information geometry** has aided the understanding and optimization of Higgs boson measurements at the [Large Hadron Collider](#), and contributed to advancements in [artificial intelligence](#), [data science](#), signal processing, shape classification, and image segregation.
- **The Rao-Blackwell process** has been applied to stereology, particle filtering, and computational econometrics, among others.
- **The Cramer-Rao lower bound** is of great importance in diverse fields such as signal processing, spectroscopy, radar systems, multiple image radiography, risk analysis, and [quantum physics](#).

## What Other Awards Conferred to C R Rao?

- Padma Bhushan in 1968.
- [Padma Vibhushan](#) in 2001.

## International Prize in Statistics

- The International Prize in Statistics is awarded every two years by a collaboration among five leading international statistics organizations.
- The prize recognizes a major achievement by an individual or team in the statistics field,

particularly an achievement of powerful and original ideas that have led to practical applications and breakthroughs in other disciplines.

- The prize is modeled after the Nobel prizes, Abel Prize, Fields Medal, and Turing Award.

**Source: IE**

PDF Reference URL: <https://www.drishtias.com/printpdf/c-r-rao-will-receive-the-2023-international-prize-in-statistics>