

Dr.Jagdish Rai (Ph.D.)

(jgraifph@iitr.ernet.in)

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**Name:** Dr. Jagdish Rai

**Designation:** Professor

**Qualification:** PhD

**E-Mail Address:** jgraifph@iitr.ernet.in

**Areas of Interest:**

- Lightning
- Cloud Formation and precipitation
- Radio propagation
- Geo-exploration
- Instrumentation
- Solar energy
- Aerosol and Air Pollution

**Experience Abroad:**

- University of Bonn, Germany
- New Mexico Tech., Socorro, U.S.A.
- University of Toronto, Canada

**Work for the improvement of higher education:**

- Member of Expert Committee of Dr. B. R. Ambedkar University Lucknow, India
- Was the convenor of the committee for course formation at M.Tech. level for the Faculty of Energy Technology.
- Instrumental in the course formation for the whole faculty (consisting of three departments)
- Completely revised a few course of the Department of Physics, IIT-Roorkee, Roorkee
- Developed the courses for M. Tech. (instrumentation) to be initiated soon in the Department of Physics, IIT-Roorkee, Roorkee, India.
- Developed all the courses for M.Tech. in Instrumentation to be started soon by the IIT-Roorkee, Roorkee.

**Achievements in Research:**

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- Availed the most prestigious fellowship i.e. Alexander von Humboldt fellowship in Germany.
- Got the best paper at the National Space Science Symposium, held at Thiruvananthapuram during December 1994.
- The first to take finite ground conductivity into account for lightning electric field calculations.
- Given a new direction in lightning research by using the atmospheric for geophysical exploration.
- Was the first to give viable explanation to UHF emission from lightning.
- Established a very good research laboratory at the Department of Physics, IIT-Roorkee, Roorkee, India.
- Ten persons have completed Ph.D. under me and four are working presently for their Ph.D. degree.

### **Support to Industries:**

Support the following industrial units in the development of their products.

- Jayni Instruments, Roorkee, India.
- Choice Solutions Pvt. Ltd., Hyderabad, India.
- Kacklwana Scientific Works, Ambala, India.

### **Design and Development of Instruments:**

For the research purpose, following instruments have been designed and fabricated:

- Very Low Frequency Recorder (VLCR)
  - Field Change Recorder (FCR)  $e^{1/2}$
  - Whistler and Tweek Recorder (WTR)
  - Ground conductivity measuring system using VLF atmospheric
  - Air Pollution analyzer using Laser
  - Aerosol Assessor (By measuring electrical air conductivity)
  - Cloud Simulation Chamber
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