



## **Ujjwal Koley**

Dr. Ujjwal Koley has completed his Bachelor's degree programme from Ramakrishna Mission Residential College Narendrapur, Kolkata, India. After completing the Master degree from Tata Institute of Fundamental Research - Centre for Applicable Mathematics, Bangalore, India, Dr. Koley moved to Centre of Mathematics for Applications (CMA), Oslo, Norway and completed his PhD degree in applied mathematics from CMA. Dr. Koley has completed his postdoctoral training from Department of mathematics, University of Wuerzburg, Germany as a Humboldt fellow. Currently, he is a Reader at TIFR-CAM, Bangalore, India.

### **Research Areas:**

- Hyperbolic PDEs: Conservation Laws
- Numerical Analysis
- Dispersive Equations
- Stochastic Balance Laws

### **Can you explain in a few words how the mathematical regularities you investigate work and how these regularities contribute to our understanding of naturally predetermined processes?**

Since the days when I started my research career in mathematics as Master degree student, in this rather not-so-long career span, partial differential equations remained as a common thread passing through all my research involvements. In recent years, as a part of my research at TIFR-CAM, Bangalore; I have been mainly focusing on partial differential equations related to problems in fluid and plasma dynamics. The main aim of my research has been to design mathematical tools and robust numerical algorithms and to apply them to interesting problems that arise in the physical sciences.

### **Where do you need other disciplines and how can they help you to improve your strategies to face the 21st century's challenges?**

Since the problems under consideration involve physical phenomena, the emphasis is to participate in and contribute to interdisciplinary research projects carried out by teams consisting of computational scientists, mathematicians and physicists.