

# **Filler Induced Self-Polarized Poly(Vinylidene Fluoride) Based Flexible Piezo- and Pyro-electric Energy Harvesters for Human Physiological Signal Acquisition**

**Krittish Roy**

Post-Doctoral Research Assistant

Department of Physics and Bernal Institute

University of Limerick, Limerick V94 T9PX, Ireland

and SFI Centre for Medical Devices (CURAM)

## **Abstract**

Flexible, sensitive piezo- and pyro-electric nanogenerators are in high demand because of their wide range of applications in the field of pressure sensor, health care monitoring and artificial intelligence. In this regard, poly(vinylidene) fluoride polymer has gathered immense attention among the researchers due to its biocompatibility, low-cost, low density, and bulk production capability. Till date, several inorganic and organic materials have been incorporated in the polymer matrix to obtain better piezo-, pyro-electric performance and sensitivity. However, we have explored a new class of single crystalline material, metal-organic framework (MOF) and CdS nanoparticles grafted reduced graphene oxide (CdS-rGO) as dopants to improve the properties which are associated with the piezo- and pyro-electric output. In this seminar, I am going to present the synthesis strategy of MOF and CdS-rGO along with the induced hybrid polymeric structure, device fabrication, output performance and their real time application in human physiological signal monitoring.

## **Biography**

Krittish Roy obtained his B.Sc and M.Sc degree in Chemistry from Jadavpur University, Kolkata, India in 2013 and 2015 respectively. Then he joined as a research fellow in department of Physics, Jadavpur University as well. He successfully submitted his Ph.D. thesis in 2022 and joined as a post-doctoral research assistant in University of Limerick, Ireland. He has contributed to more than 15 published papers in reputed journals and book chapter till date. Moreover, he presented his works in several national and international conferences during his early research career. In addition, he obtained Department of science and Technology (DST) scholarship during bachelors and masters followed by a DST fellowship during Ph.D.