

# **"ONE DAY WORKSHOP ON Gamma Ray Spectroscopy"**

## **(For B. Sc. VI Semester Students)**

Nuclear reactions are accompanied by the emission of charged particles such as alpha, protons, electrons, uncharged neutrons and electromagnetic radiations like gamma rays and X rays. In order to understand the properties of these particles or radiations and also their interactions with the atomic nuclei, different types of nuclear detectors are employed. Examples for these detectors are GM counter, proportional counter, ionization chamber, Si (Li) and HPGe semiconductor detectors, Inorganic and organic scintillators, photographic emulsions, Cerenkov detectors and Bubble chamber. Most widely used detector is NaI (TI) scintillator Gamma Ray Spectrometer. It is reported that around 300 radio nuclides can be easily detected with this detector. This GRS is used extensively in the study of nuclear structure, nuclear transitions, nuclear reactions, in space research, and also in the elemental and isotopic analysis.

The Einstein Study Circle forum of Department of Physics, Karnatak Science College, Dharwad had organised one day workshop on Gamma Ray Spectroscopy (GRS) on 4<sup>th</sup> May 2023 for B.Sc. VI semester students. Twenty students participated in this workshop. The workshop was inaugurated by Principal, Dr. S.C. Chougala. In his inaugural address, Principal emphasised on developing additional skills along with the regular academic programme. Prof. M.R. Ranganath, H.O.D., Department of Physics, accentuated the merits of GRS in the campus and motivated the students to involve actively in the workshop. Dr. (Smt.) Nirupama J.M., Chairperson, Einstein Study Circle, highlighted about the objectives and importance of the workshop.

In the morning session, resource person, Dr. Nirupama J.M. gave a lecture on classification of detectors, working principle of NaI(Tl) scintillator detectors, basic mechanisms involved in the interaction of Gamma rays with the material of the detector and applications of the nuclear detector in various fields. Resource person, Prof. Blaise Lobo elucidated about different parts of the Gamma Ray Spectrometer, conversion of light output into electrical signal, signal processing, pulse height analysis, energy calibration and data acquisition. In the afternoon session, Resource persons Mr. R.C. Yadav and Prof. M.R. Ranganath gave hands on training to the students on Gamma Ray Spectrometer.

All the staff members of the department had participated in the workshop. Kumari Srushtri Hebballi sung invocation song. Kumar Naveen Menasinakai anchored the program and Kumari Pallavi Angadi presented a vote of thanks.



