

One Day National Webinar on *Essence of Nuclear Physics Research – Why and How* was organized by Department of Physics, Raniganj Girls' College under the aegis of Internal Quality Assurance Cell (IQAC) on 26 August 2021

One Day National Webinar
on
Essence of Nuclear Physics Research – why and how
26 August 2021 14:00

Organized by:
Department of Physics
under the aegis of
Internal Quality Assurance Cell
(IQAC)

Raniganj Girls' College
Searsole Rajbari-713358
Paschim Bardhaman
West Bengal, India

Talk – I: Do Radioactive decay rates depend on external environment?

Speaker: Dr Anjan Ray
Retired as a Scientific Officer (H+), VECC, DAE and Professor, Homi Bhabha National Institute, Govt. of India.
At present, Principal Investigator of a Research Grant from the Science and Engineering Research Board, DST, Govt. Of India.
Earlier Research Professor University of Tennessee and Oak Ridge National Laboratory, Tennessee, USA

Overview of the talk : We have studied in schools and colleges that the radioactive decay rates are completely independent of the external environment such as pressure, temperature and the surrounding chemical environment. Although the statement is generally true, we shall discuss about the small variations (fraction of 1 per cent) of the electron capture nuclear decay rates observed in different chemical environments and under compression in the laboratory experiments. These results have interesting astrophysical and geological implications. All the high atomic number (Z>26) elements that we see around us today were formed by radioactive decay processes such as electron capture, neutron capture, beta decay etc. at the centre of massive stars during supernova explosion or during the merger of neutron stars in the distant past. The same process of heavy element creation is going on today also. In the field of Geology, the electron capture by ⁴⁰K at the centre of the earth under very high pressure plays an important role in the production of heat and tectonic evolution. How are this electron capture nuclear processes affected by extreme pressure, temperature and chemical environment?

Talk – II: What is radiation and how do we detect them

Speaker: Dr. Deepak Pandit
Scientific Officer (F), VECC, DAE, Govt of India
Assistant Professor, Homi Bhabha National Institute, Govt. of India.

Overview of the talk : Nuclei undergo a variety of processes resulting in the emission of radiation of different kinds. The radiation emitted in different processes consists of electromagnetic such as X-rays and gamma rays as well as ionizing such as alpha, beta, neutron, proton and fission fragments. The detection of these different particles requires different kind of detectors such as scintillator, semiconductor and gas detectors. In the talk, how these radiations are emitted and experimentally detected employing different detectors to study the various properties of the nucleus will be discussed.

Chief Patron:
Dr Chhabi De, Principal

Patron:
Dr Anita Mishra, Associate Professor of Hindi & IQAC Coordinator

Convener:
Dr Alok Kumar De, Associate Professor of Physics

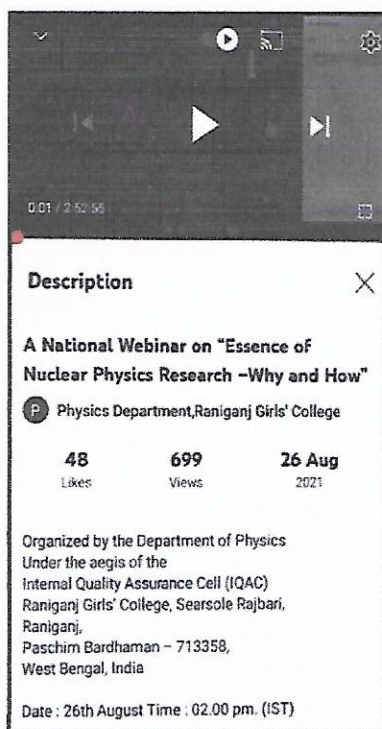
Co-Convener:
Dr Saumendra Sankar De Sarkar, Assistant Professor of Physics

Program Coordinators:
Sri Anindam Chaudheri, State Aided College Teacher of Physics
Sri Partha Mondal, State Aided College Teacher of Physics

Technical Team, Raniganj Girls' College

Registration link: <https://bit.ly/3L4K3Bl>

Brochure of the Webinar



About

The webinar was presided over by the Dr Chhabi De, Principal, Raniganj Girls' College. The invited eminent speakers for the webinar, Dr Amlan Ray, Professor, Homi Bhaba National Institute, Govt. of India and Dr Deepak Pandit, Assistant Professor, Homi Bhaba National Institute, Govt. of India, were introduced by the Head of the Department of Physics. The webinar focused on scientific knowledge about radiation.

Link to YouTube: <https://youtu.be/xUwloNH0ExY>

Participant Details:

About 86 participants joined the webinar on the Google Meet platform and 699 participants joined via You Tube

Outcome of the webinar:

Knowledge acquired about

The role of external environment on radioactive decay rates

Exploring the nature of radiation and its detection

Chhabi De
Principal 10/11/22
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