

Nuclear Radiations for Medicine, Agriculture and National Security – A Multidisciplinary Approach

Overview

All professionals, whether they are physical scientists, health scientists, medical professionals or other disciplines, need to have some common knowledge of nuclear radiation if they use it in their works in one way or the other. The common knowledges are regarding the quantification of radiation levels and estimate the durations over which the radiations are significant contributors, the interactions of the radiation with matter along with the physico-chemical changes the radiation can induce in material media. This course will provide the participants with this knowledge and get them familiar with the web-based tools to enable them to become life-long learners and stay current with nuclear radiation information during their careers and beyond.

The primary objectives of the course are as follows:

- To enable the participants to be able to ask right questions and be able to quantify the levels of radiations in a given system and be able estimate the time-variations of the radiation levels.
- To enable the participants to assess the possible nuclear transformations and possible by-products in these processes.
- To enable the participants to assess the radiation doses and dose distributions in material samples
- To enable the participants to assess various methods of producing medical isotopes and determine their relative merits.
- To enable the participants to assess the food irradiation technologies and gain good grasp of optimization of irradiation protocols to enhance the food quality and storage times.
- To introduce the participants to the non-destructive testing and trace element analysis techniques using nuclear radiations with goal to contribute to security system and detection of contraband materials, trace element detections.

Modules	Nuclear Radiations for Medicine, Agriculture and National Security – A Multidisciplinary Approach: August 1 – 7, 2018 Note: Number of participants for the course will be limited to fifty (50)
You Should Attend If...	<ul style="list-style-type: none">- you are a trainee or researcher in manufacturing, service and government organizations including Public and Private R&D laboratories, technical staff of radiation therapy and nuclear medical imaging facilities.- you are a Students at all levels (BTech/MSc/MTech/PhD) or a Faculty from academic institutions and technical institutions.
Fees	The participation fees for taking the course is as follows: <ul style="list-style-type: none">- Participants from abroad : US \$500- Industry/ Research Organizations: Rs.10,000/-- Academic Institutions: Rs. 3,000/- The above fee includes all course materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility. The participants will be provided with accommodation on payment basis.

The Faculty



Professor C. Rangacharyulu is a Faculty of Physics at the **University of Saskatchewan Saskatoon, SK, CANADA**. He has more than 40 years of experience working at various accelerators from 1 MeV Van de Graaff to 12 GeV proton synchrotrons, electron beam facilities of a few MeV to 800

MeV, photon beam facilities of a few MeV to 2.5 GeV, on nuclear and particle physics experiments. He has been heavily involved in developing nuclear detector systems, nuclear electronic data system organizations, data analyses, physics interpretation etc, in international collaborations on four continents. He published nearly 200 articles in international peer reviewed journals with nearly 4000 citations. He has been teaching physics for undergraduate and graduate students for more than 30 year on both theory and experiments of diverse subfields of physics. He has also authored a text book in the exact area of the course with title: Physics of Nuclear Radiations- Concepts, Techniques and Applications, which is used for multidisciplinary courses for students in physics, medicine, agriculture, engineering and education.



Dr. Pushpendra P. Singh is a Faculty of Physics at the **Indian Institute of Technology Ropar, Rupnagar, Punjab, INDIA**. His research interest includes, nuclear instrumentation and accelerator based nuclear reactions and spectroscopy investigations. He has more than 15 years of experience working at IUAC New Delhi, TIFR Mumbai, LNL Italy,

GSI/FAIR Germany in different areas and applications of nuclear physics. More here:
<http://www.iitrpr.ac.in/physics/pps>

Course Co-ordinator

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