

2020 WORKSHOP ON NUCLEAR TECHNOLOGY FOR WATER AND FOOD SECURITY

HOST: The Nelson Mandela African Institution of Science and Technology (NM-AIST), Arusha, Tanzania.

ORGANIZED by African Centres of Excellence (ACE): Water Infrastructure and Sustainable Energy Futures (WISE-Futures).

DATE: 20th - 31st July 2020

TARGETED PARTICIPANTS: Academicians, Policymakers, Post Graduate students in radiation sciences and technologies, Researchers, Medical doctors, Pharmacists, engineers, agricultural and livestock specialist.

About the ACE:

WISE-Futures is among the 24 centres of excellence in the Eastern and Southern African region supported by the World Bank under the ACE II project. WISE-Futures is focusing on three key areas: water security, water resources security, and energy security. More detail about center can be found at www.wisefutures.ac.tz.

KEY NOTE SPEAKER / INSTRUCTOR: PROF. CHARY RANGACHARYULU



Chary Rangacharyulu is a professor in the Department of Physics and Engineering Physics at the University of Saskatchewan, Canada.

He has been teaching diverse topics of physics and engineering physics for nearly 35 years. His research interests are in nuclear and elementary particle physics. The main focus of this research is unravelling structure and symmetry information in the sub-atomic world.

The research is hardware and software intensive. The main activities involve developments of radiation detector. Assemblies and the ancillary electronic arrangements to accomplish the physics goals at the facilities.

More recently, he is engaged in medical isotope research and food irradiation technologies. For this work, he uses a) AVF cyclotron of Research Centre for Nuclear Physics, Osaka, Japan b) Slow POKE research reactor and a medical cyclotron and c) 225 keV X-ray irradiator in Saskatoon.

He published nearly 200 research articles in international journals. He published a textbook: Physics of Nuclear Radiations- Concepts, Techniques and Applications (Taylor and Francis, 2014) and a monograph: From Atoms to Higgs Boson – Voyages in Quasi-Spacetime with Chris Polachic (CRC press, Jenny Stanford Pub, June 2019).

His worldwide science outreach activities have won him several awards and honors, including election as a fellow of the American Physical Society.

WORKSHOP DESCRIPTION:

This two-week short course introduces:

(1) **FOOD IRRADIATION:** the use of nuclear technology for controlling spoilage and eliminating foodborne pathogens in food. The positive effect of food irradiation is similar to pasteurization. However, the difference between these two techniques is on the source of energy used to kill microbes. The traditional pasteurization uses heat while the food irradiation relies on the energy of ionizing radiation.

(2) **WATER :** the utilization of nuclear technology to determine the source, age, movement and interaction of water above and below the ground. Use of technology on testing the water quality concerning poisonous substances such as mercury and lead; and also removing fluoride and arsenic from water

WISE-Futures OFFER

WISE-Futures will provide the facilities and venue. Lunch and tea will be provided for the entire workshop period of two weeks. There is no registration fee, however, participation is on a competitive basis and female participants from outside Tanzania are highly encouraged to attend.

APPLICATION PROCESS

Please register by sending an email to wise.admin@nm-aist.ac.tz before 21st June 2020 with the heading 2020 Nuclear Physics Short Course. Provide us an attachment motivation letter (how will this course help you in your current work) and your updated 3 – pages CV. Participants must cover their cost, i.e., accommodation, travel, and meals during the entire period of the short course.