

# 2017 Workshop on Basics and Applications of Nuclear Technology for Socio-Economic Development

**Date:** July 10—21, 2017

**Location:** NM-AIST Tengeru Campus, Arusha, Tanzania



**For:** Academicians, policy makers, researchers, medical doctors, and pharmacists

## Key Speaker:



Prof. Chary Rangacharyulu:

Prof. Rangacharyulu's main research interests: Nuclear and Elementary Particle Physics, Quantum Chaos, Conceptual Foundations of Physics and Physics Education. Nuclear and Elementary Particle Physics: The main interests in this research are unraveling structure and symmetry information in the sub-atomic world. This work is carried out in collaboration with research groups in Darmstadt (Germany), National High Energy Physics Laboratory (KEK), Tsukuba (Japan) and Osaka University, Osaka, Japan. The research is hardware and software intensive and the main activities involve developments of radiation detector assemblies and the ancillary electronic arrangements to accomplish the physics goals. The main experimental facilities are the following: a) the three-spectrometer system of the A1 collaboration at the 855 MeV electron accelerator (MAMI) at Mainz, Germany; b) 130 MeV superconducting electron accelerator (S-DALINAC) at Darmstadt; and c) 12-sector superconducting toroidal spectrometer at the 12 GeV Proton Synchrotron at KEK and d) AVF cyclotron of Research Centre for Nuclear Physics, Osaka, Japan and d) SlowPOKE research reactor in Saskatoon.

He published nearly 200 research articles in international journals and a text book: Physics of Nuclear Radiations- Concepts, Techniques and Applications (Taylor and Francis, 2014).

## Other speakers:



Dr. Yusufu Abeid Chande Jande:

Dr. Jande acquired his BSc and MSc in Mechanical Engineering from Middle East Technical University, Ankara Turkey and PhD in Mechanical Engineering from Hanyang University, South Korea. He has training on Internet Reactor Laboratory in Saclay France in 2015. His research areas: capacitive deionization for desalination, CO<sub>2</sub> capture, and purification of any ionic liquids; and production of composite materials using selective laser sintering.





Dr. Wilbroad E. Muhogora

Obtained a PhD degree in Physics from the University of Dar es Salaam, Tanzania under Sandwich Program with Medical Physics Department, *Ospedale Santa Maria della Misericordia*, Udine in Italy. Received a considerable professional development boost from participating in education and training events organized by the International Atomic Energy Agency (IAEA) and the International Centre for Theoretical Physics (ICTP). A member of professional organizations, the Society of Radiological Protection (UK), International Radiation Physics Society, and the Science Committee of International Organization of Medical Physics. Currently employed by the Tanzania Atomic Energy Commission as a Principal Radiation Health Physics Research Officer and serves as IAEA external expert on Technical Cooperation activities. His research interest is on imaging physics, radiation dosimetry and radiation protection and safety.



Mr. Simon Leonard C. Mdoe

BSc and MSc Electronics with professional training in nuclear instrumentation and nuclear technology applications. Involved in various projects in nuclear technology that include pre-feasibility for research reactor, applications of research reactor, feasibility for multipurpose irradiation facility, nuclear electronics and instrumentation and control, networking of nuclear science and technology education



Mr. Dennis Amos Mwalongo

BSc (Physics, Mathematics), PGD (Radiation Protection), MSc (Nuclear Physics). He is competent in radiation protection and safe use of radiation sources, radiation metrology, environmental radioactivity and nuclear analytical techniques. He is experienced in Coordinating various International Atomic Energy Agency (IAEA) Supported Projects in Uranium mining life cycle. He is currently a chief scientific investigator for IAEA Coordinated research project on “Uranium - Thorium fuelled High Temperature Gas-Cooled Reactor Applications for Energy Neutral Sustainable Comprehensive Extraction and Mineral Product Development”.



Mr. Yesaya Yohana Sungita:

Mr Sungita Graduated at University of Dar es salaam where he acquired the BSc(ed) and MSc in the field of electronics. He has a training on medical radiology imaging facilities, CRS-TBS, **Trieste, Italy** and training in Electronic, Nuclear Instrumentation and Reactor control, SAFARI 1, Nuclear Reactor, Nuclear Energy Corporation South Africa (NECSA). Participated on Review and modify programme for nuclear instrumentation to develop first line maintenance capacity in developing IAEA Member state, Vienna, and Harmonised coordinated research project on QA and QC test procedures in nuclear instruments. Worked with TAEC for 26yrs in the field of nuclear electronics and instrumentation.

**Workshop Description:**The workshop introduces: (1) brief review of radioactivity including secular and transient equilibria;(2) nuclear decay/reaction energetics; (3) radiation interaction with matter: charged particles, photons and neutrons;(4) principles of nuclear imaging;(5) radiation dosimetry;(6) applications of nuclear techniques in medicine agriculture, industry, security etc.:(7) sources of nuclear radiations: particle accelerators, and nuclear reactors; (8)nuclear reactor safety;(9) Monte Carlo simulation /calculations/methods;and (10) radioactive waste management and handling (cradle to grave). **Experiments:** (1) gamma ray energy spectroscopy, (2) alpha spectrum measurement,(3) radiotracer technologies and nucleonic gauges, and (4) nuclear analytical techniques using XRF.

**Note:** The 100,000 TShs registration fee for lunch, two coffee breaks, bus transport from Impala hotel to NM-AIST, lecture materials, and others. Please send via M-pesa to 0(754)019-075 (Yusufu Jande);



send an email to [yusufu.jande@nm-aist.ac.tz](mailto:yusufu.jande@nm-aist.ac.tz), [thomas.kivevele@nm-aist.ac.tz](mailto:thomas.kivevele@nm-aist.ac.tz), and [sophia.bakili@nm-aist.ac.tz](mailto:sophia.bakili@nm-aist.ac.tz) after sending money.

**Space is limited, register early by sending an email to [yusufu.jande@nm-aist.ac.tz](mailto:yusufu.jande@nm-aist.ac.tz), [thomas.kivevele@nm-aist.ac.tz](mailto:thomas.kivevele@nm-aist.ac.tz), and [sophia.bakili@nm-aist.ac.tz](mailto:sophia.bakili@nm-aist.ac.tz).**

