Canadian Association of Physicists
Association canadienne des physiciens et physiciennes

Contribution ID: **411** Type: **Invited Speaker / Conférencier(ère) invité(e)**

Photons for Food and Medicine

Thursday 12 June 2025 17:15 (45 minutes)

Since the discovery of X-rays and radioactivity at the end of the 19th century, nuclear radiations, especially photons of a few hundred keV to MeV energies have found applications in various aspects of human life, such as food irradiation, medical diagnostics and therapy. However, there is still room for further research and developments to optimize the technologies for maximum benefits.
We have been involved in studies of food irradiation with a few hundred keV X-rays rather than multi MeV electron/photon beams as the ultimate purpose is to induce atomic/molecular transformations rather than nuclear transmutations.
We have also been involved in exploring the possibility to produce medical isotopes at research reactors such as now defunct Saskatchewan Research Council SlowPOKE reactor.
As medical imaging using PET and SPECT technologies require elaborate computer algorithms in which a single event carries very little information about the tumor location, we attempt non-collinear cascade gamma coincidence technique as a marriage of PET and SPECT. Unlike other works to replace PET technologies, our method allows to retrofit the existing PET machines with our modality.
My talk will give a brief overview of our motivations, our methods and tools we employed so far and the current status of our works.

Author: RANGACHARYULU, Chary (Dept. of Physics and Engineering Physics, University of Saskatchewan)

Presenter: RANGACHARYULU, Chary (Dept. of Physics and Engineering Physics, University of Saskatchewan)

Session Classification: (DPMB) R2-7 | (DPMB)

Track Classification: Technical Sessions / Sessions techniques: Physics in Medicine and Biology / Physique en médecine et en biologie (DPMB-DPMB)