Physical Research Laboratory, Ahmedabad

Colloquium 21_05

Speaker: **Dr. Bhaskar Mukherjee**

School of Physics, The University of Sydney, Australia and an Associate Scientist, Institute of Radiation Medicine of Helmholtz Institution, Munich, Germany

Title: **"Radiation Dosimetry and Radiation Protection in Space Missions"**

Date and Time: **Wednesday, 03 February 2021, 16:00 – 17:00 hrs**

YouTube Link: **https://www.youtube.com/watch?v=jhV862BsHuM&feature=youtu.be**

Abstract

Outer space is continuously bombarded by energetic particles of galactic origin as well as protons of a wide energy distribution resulting from coronal mass ejection from the Sun designated as galactic cosmic rays (GCR), and solar particle events (SPE), respectively. Astronauts in space missions are directly exposed to GCR and SPE radiations. On the other hand, pilots and aircrew during long haul intercontinental flights and human population living in high-altitude mountainous regions are exposed to secondary radiations originated from cosmic ray shower (CRS) in the upper atmosphere. Using widely available Lithium Fluoride (LiF) and Beryllium Oxide (BeO) thermoluminescent dosimeter (TLD) chips a novel radiation dosimeter emulating "Mammalian Tissue-Equivalence" the LiBe-Micro Dosimeter was developed. The R&D pathway of LiBe-Micro-Dosimeter and important results including radiation dosimetry, risk assessment and radiation protection issues of astronauts resulting from space missions will be presented.

The Speaker

Dr. Bhaskar Mukherjee is presently affiliated to School of Physics of University of Sydney Australia as a Leader Space and Neutron dosimetry Group and as an Associate Scientist to the Institute of Radiation Medicine of Helmholtz Institution in Munich, Germany. After obtaining his Bachelor of Electrical Engineering (BEE) degree specialising in Electrical Measurements and Instrumentation from Jadavpur University in Kolkata, he studied Physics at the Technical University of Berlin, Germany and received his MS (Diplom Physiker) and PhD (Dr.rer.nat) degrees specialising in Experimental Nuclear Physics in 1975, and 1980, respectively. Dr. Mukherjee pursued his postdoctoral research work at the Argonne National Laboratory (ANL) in Chicago, the Michigan State University (MSU) in East Lansing USA, the Tri-University-Meson-Factory (TRIUMF) in Vancouver Canada, and the Austrian Research Centre Seibersdorf (ÖFZ) in Vienna Austria. Dr. Mukherjee held senior scientific researcher and group-leader positions at various scientific research centres and academic institutions in the USA, Australia, Canada, Austria, and Germany and has published 250 research papers and reports and is credited with 6 patents. Dr. Mukherjee has specialized in various fields of applied nuclear physics, primarily radiation biophysics relevant to human space missions, biomedical application high-energy particles for cancer therapy, and particle accelerator physics. Dr. Mukherjee is a reviewer of 6 high-quality scientific journals, senior life member of Institute of Electrical and Electronics Engineers (IEEE), member of IAEA expert panel (Medical Physics), and an Associate of the Committee on Space Research (COSPAR).

ALL ARE WELCOME