



RAD SPACE
2025

PROTECTING LIFE IN SPACE



International Radiobiology Conference

on

**Biological Effects of Space Radiation, Heavy
Ions & Human Space Missions- Mechanisms &
Biomedical Countermeasures**



27th Feb- 1st Mar 2025
Venue: Manekshaw Centre
Khyber Lines, Delhi Cantt, Delhi-110010



Hosted by :

Institute of Nuclear Medicine & Allied Sciences (INMAS)
DRDO, Ministry of Defence

Brig. S.K. Mazumdar Marg, Timarpur, Delhi-110054, INDIA



About the Conference : Exploring the *Outer Space* for the benefit of mankind has become a major necessity in modern times. Looking into far future, depending on our planet alone for resources & survival may render the humanity highly vulnerable to natural/ manmade crises and catastrophic events. Therefore, we must explore all possible avenues beyond our Mother Earth. Significant strides have been made, such as long-term human presence on the International Space Station (ISS) and missions to the Moon, which demonstrate our growing ability to sustain life in space. However, for successful missions to places like Mars, we need a deeper understanding of the unique health risks posed by the deep-space environment beyond Earth's protective magnetic shield. While we've learned a lot about challenges like microgravity, isolation, and disrupted sleep patterns from ISS and Moon missions, interplanetary missions bring new, more severe risks.

In outer space, astronauts are exposed to Galactic Cosmic Rays (GCR), a form of high-energy radiation that includes heavy charged particles. Unlike the radiation on Earth or in low-Earth orbit, GCR particles can penetrate spacecraft shielding and cause dense ionization tracks in tissues, leading to severe biological damage. This type of high-LET (Linear Energy Transfer) radiation poses serious risks to astronaut's health & cognition, accelerated tissue aging, and long-term consequences like cancer. This conference offers an opportunity to enhance our understanding of space radiation and address the challenges it poses to human health. By developing effective strategies and protective measures, we can ensure the safety and well-being of astronauts, paving the way for successful long-term missions to Mars and beyond, and ultimately safeguarding the future of humanity.

Conference Theme Areas:

**Biomarkers of
Exposure/
Susceptibility**

**Chronic Effects/
Carcinogenesis**

Combined Stressors
(Microgravity, Confinement,
Circadian Misalignment,
Isolation and Space Radiation)

**Acute & Late/
Chronic Effects of
Heavy Ions**

**Mathematical
Modeling and
Simulation**

**BIOLOGICAL
EFFECTS OF
SPACE
RADIATION**

**Medical
Countermeasures**

**Cellular &
Molecular
Mechanisms**

**Muscle &
Bone Loss**

**Degenerative
Diseases/
Cognition**

**Heavy Ions
Radiation
Chemistry**

Speakers

Keynote Speaker



Prof. Albert Fornace
Georgetown University,
Washington DC, USA



Prof. Amitava Adhikary
Oakland University
Michigan, USA



Prof. Amrita Cheema
Georgetown University
Washington DC, USA



Prof. Andrzej Wojcik
Stockholm University
Sweden



Dr. Ashish Soni
University of Duisburg-Essen
Medical School, Germany



Prof. Avinash C Pandey
Inter-University Accelerator
Centre (IUAC), New Delhi, India



Dr. Catherine Davis-Takacs
Armed Forces Radiobiology Research
Institute, USUHS Bethesda
Maryland, USA



Sh. D K Singh
Director HSFC, ISRO,
Bangalore, India



Dr. Evagelia Laiakis
Georgetown University
Washington DC, USA



Prof. Francis Cucinotta
University of Nevada
Las Vegas, USA



Prof. Gayle Woloschak
Feinberg School of Medicine
Chicago Illinois, US



Dr. Igor Shuryak
Columbia University
New York, USA



Prof. George Iliakis
University Duisburg-Essen
Germany



Dr. Lalitha Kurada
Armed Forces Radiobiology Research
Institute, USUHS, Bethesda
Maryland, USA

Speakers



Dr. Manoor Prakash Hande
National University of Singapore,
Singapore



Prof. Marco Durante
Technical University Darmstadt
Germany



Dr. Martin Falk
Czech Academy of Sciences
Brno, Czech Republic



Prof. Melanie Coathup
University of Central Florida
Orlando, Florida, USA



Prof. Richard Britten
Eastern Virginia Medical
Virginia, USA



Dr. Sanchita Ghosh
Armed Forces Radiobiology
Research Institute, USUHS
Bethesda, Maryland, USA



Dr. Santosh Kumar
Georgetown University
Washington DC, USA



Dr. Shubhankar Suman
Georgetown University,
Washington DC, USA



Prof. Siamak Haghdoust
University of Caen-Normandie,
Caen, France & Stockholm University,
Sweden



Prof. Sudipta Seal
University of Central Florida
Orlando, Florida, USA



Dr. Sung-Kee Jo
Atomy Corp.
Republic of Korea



Col. Susan Whiteway
Armed Forces Radiobiology Research
Institute, USUHS Bethesda
Maryland, USA



Dr. Vidya Kumar
Armed Forces Radiobiology Research
Institute, USUHS, Bethesda
Maryland, USA



Prof. Vijay Singh
Armed Forces Radiobiology
Research Institute
USUHS, Bethesda, Maryland, USA

Chief Patron

Dr. Samir V. Kamat
Secretary, Dept of Defence R&D & Chairman DRDO

Patron

Dr. U. K Singh
Distinguished Scientist & DG (SSS), DRDO

INTERNATIONAL ADVISORY COMMITTEE

Chairman

Prof. Albert Fornace , Georgetown University, Washington DC, USA

Members

Dr. Shubhankar Suman, Georgetown University, Washington DC, USA

Prof. Francis A Cucinotta, University of Nevada, Las Vegas ,USA

Prof. Gayle Woloschak, Northwestern University, Washington, USA

Prof. Andrzej Wojcik, Stockholm University Sweden

Prof. Siamak Haghdoost, Caen-Normandie, Caen, France & Stockholm University, Sweden

Prof. Amitava Adhikary, Oakland University Michigan, USA

NATIONAL ADVISORY COMMITTEE

Surgeon Vice Admiral Arti Sarin, AVSM, VSM, DG AFMS

Dr. Subrata Rakshit, Distinguished Scientist & DG (TM & SAM), DRDO

Smt. U Jeya Santhi, Outstanding Scientist & DG (HR), DRDO

Dr. Chandrika Kaushik, Outstanding Scientist & DG (PC & SI), DRDO

Dr. Manu Korulla, Outstanding Scientist & DG (R&M), DRDO

Prof. Avinash Chandra Pandey, Director, IUAC, New Delhi

Chairman, Organizing Committee

Dr. Sudhir Chandna
Director, INMAS

Organizing Secretary

Dr. Kailash Manda

Co-Organizing Secretary

Dr. Anant Narayan Bhatt

Participation for Poster Presentation (Proffered Research Papers & Ideation Posters):

Participation is invited from Faculty Members and Research Scholars from Universities and Institutions (IITs, NITs, ISERSs, IIITs, others), Radiation Oncology Departments/ Hospitals engaged in Radiotherapy. Please submit your abstract for proffered papers (150 words, Font: Times New Roman, 12 points) in a word document. Selected submissions will be called for poster presentations. Limited seats are available.

Ideation Competition:

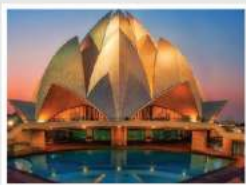
Research Scholars from Life Science/Physics/Chemistry/Computational Sciences are encouraged to participate in the ideation competition on the theme "Mitigating the Biological Effects of Space Radiation" by presenting their innovative ideas in the form of a Poster.

Poster Size: Printed; Size: 3 feet (W) x 4 feet (L)

Note: Selection of participation/papers/posters in both the categories will be done by a Scientific Screening Committee. Best 03 Posters in each category will be selected by a panel of distinguished jury members. Certificate will be provided to each participant.

No registration fee will be charged and only working lunch will be provided. Participants are expected to book their own accommodation. Request for registration/abstracts/posters to be submitted to the organizing committee through email on radspace2025.inmas@gov.in by 7th Feb 2025.

Tourist Attractions in and Around Delhi:



Lotus Temple

Lotus Temple is an architectural wonder and is composed of 27 free-standing marble-clad petals arranged in lotus bloom.



Akshardham Temple

The temple displays millennia of traditional & modern Hindu culture, spirituality and architecture.



Taj Mahal

Taj Mahal stands majestically on the bank of river Yamuna & is famous for its beauty & also one of the wonders of the world. Distance from Delhi airport: 237 km

Average temperature during February: 28°C/14°C

About INMAS: Institute of Nuclear Medicine & Allied Sciences (INMAS), is an Institute of DRDO working extensively in the fields of Radiation Health Sciences, Radiation Medicine & Biomedical Radiation Countermeasures.

Institute of Nuclear Medicine & Allied Sciences (INMAS-DRDO)

Ministry of Defence, Government of India
Brig. S.K. Mazumdar Marg, Timarpur, Delhi-110054
For Emergency Contact: Phone : 011-23905383
Fax No.011-23919509, Institute E-mail ID : director.inmas@gov.in

