

Annual Report of IANCAS for the year 2021-2022

Dear Members,

I welcome you all in the 42nd Annual General Body Meeting of IANCAS. It gives me immense pleasure to present the activities of our association during the period April 1, 2021 to March 31, 2022.

1. Membership

The Association has 1906 life members (LMs) and 19 corporate members as on March 31, 2022 with an addition of 37 life members during this financial year (2021-22).

2. IANCAS Workshops

2.1. Two days Workshop at MSCBD University, Baripada during January 28-29, 2022

A Two-Days BRNS-IANCAS National Workshop on “*Societal Applications of Nuclear Science and Technology*” was organized at Maharaja Sriram Chandra Bhanja Deo (MSCBD) University Sriram Chandra Vihar, Takatpur, Baripada-757003, Odisha during January 28-29, 2022. Dr. R. Acharya, Radiochemistry Division, BARC was the coordinator of this Workshop. Dr. A.K. Mohanty, Director, BARC was the chief guest for this workshop. There were 150 participants in the Workshop. The Workshop was attended by several eminent scientists as guest or speakers. Directors of Radiochemistry & Isotope Group, Chemistry Group, Bio-Science Group, Physics Group, and IFA, BARC gave keynote lectures. In addition to this, Vice-Chairman, Odisha State Higher Education Council, Vice-Chancellor, Odisha University of Agriculture and Technology, Director, NISER, Director, IOP, and Scientific Secretary, BRNS also gave keynote lectures. The technical talks covered the topics: Nuclear analytical techniques, Development of water technologies for rural India, Application of radiation technology for Improving Plant Productivity, food preservations, Nuclear agriculture and Bio-technology. Hands on experiments were demonstrated with GM counter. IANCAS donated one G.M. counter to the MSCBD University in this workshop.

2.2. 102nd National Workshop at GITAM University, Hyderabad, during April 04-08, 2022

The 102nd BRNS-IANCAS National Workshop on “*Radiochemistry and Applications of Radioisotopes*” was jointly organized by IANCAS & GITAM School of Science, GITAM University, Hyderabad during April 04-08, 2022. Dr. S.A. Ansari, Radiochemistry Division & Secretary, IANCAS was the coordinator of this Workshop. Prof. G.A. Rama Rao, Principal, GITAM School of Science, GITAM University was the Local Convener. Inaugural function of the Workshop was attended by Prof. N. Siva Prasad, Pro-vice Chancellor, GITAM University, Dr. Verma, Director, Facility Management, GITAM University and Dr. S. Kannan, Vice-President, IANCAS. Prof. Rama Rao welcomed the audience and briefed about the workshop. Pro-Vice Chancellor in his brief address urged the participants for their active engagement in the workshop. Dr. S. Kannan delivered a keynote lecture on the topic “DAE at a Glance”.

The Workshop was attended by about 70 participants from various departments of GITAM University and other nearby Colleges. The technical program of the Workshop comprised of 12 lectures, covering the fundamental of nuclear and radiochemistry, interaction of radiation with matters, radiation detection and measurements, radioanalytical techniques, actinide chemistry, nuclear reactors, production and application of radioisotopes in healthcare, agriculture, hydrology, polymer sciences and industry. A special lecture was also delivered by Shri M.K. Sapra, Scientific Secretary, BRNS on BRNS funding through various collaborative programmes. All the lectures were held during the morning sessions, whereas experiments were conducted in the afternoon sessions. Afternoon experiments included: (1) GM Counter, (2) Gamma-ray Spectrometry using NaI(Tl) detector, (3) U/Th separation by solvent extraction, and (4) Radioimmunoassay. Each day, quiz competitions were organized after the lectures, which were eagerly participated and appreciated by the participants.

Valedictory function of the workshop was attended by Shri M. Sri Bharat, President, GITAM Society, and Dr. Y.K. Bhardwaj, Head, RTDD, BARC. All the participants were given participation certificates, and three set of IANCAS books (Fundamental of Radiochemistry, Nuclear Materials - English and Telgu). IANCAS donated one NaI(Tl) detector and one G.M. counter to the GITAM University after the Workshop. Prof. N. Siva Prasad, Pro-vice Chancellor, GITAM University in his valedictory remarks, declared the workshop a grand success. Shri. M. Sri Bharat, President, GITAM Society, in his remarks, urged the faculties of GITAM University to utilize the experience and knowledge gained in the workshop in their teaching and research carrier. The Workshop was concluded with the vote of thanks by Dr. N.K. Katari, GITAM University. Each day of the workshop was well covered by the electronic media, and various local and English newspapers.

2.3. 103rd National Workshop at NIT Rourkela, during April 11-15, 2022

The 103rd BRNS-IANCAS National Workshop on “*Radiochemistry and Applications of Radioisotopes*” was organized at Department of Chemistry, NIT, Rourkela during April 12-16, 2022. Dr. Sudipta Chakraborty of Radiopharmaceuticals Division was the Co-ordinator of this Workshop. Prof. Rupam Dinda, Department of Chemistry, NIT, Rourkela was the local Convener. Inaugural function of the Workshop was attended by Prof. K. Uma Maheshwar Rao, Director, NIT Rourkela, Prof. P. Dash, Head, Department of Chemistry, NIT Rourkela and Dr. A.K. Nayak, Head, RTD, BARC. Prof. Dinda welcomed the participants and briefed about the Workshop. Prof. K. Uma Maheshwar Rao in his address highlighted significant contributions of DAE in socio-economic development in India and shared his experience of working with DAE in uranium exploration. Dr. A.K. Nayak delivered a keynote lecture on the topic “Relevance of nuclear power for a decarbon energy sector and unreasoned fear of radiation”.

The Workshop was attended by 120 participants from various departments of NIT Rourkela and other nearby Colleges. The technical program of the Workshop comprised of 14 Lectures, covering the fundamental of nuclear and radiochemistry, interaction of radiation with matters, radiation detection and measurements, nuclear reactors, production and application of radioisotopes in healthcare, agriculture, food preservation, water resource management and industry. Shri Hemant Agnihotri of BRNS delivered a special lecture on various activities of BRNS, and highlighted the BRNS funding programmes. All the lectures were held during the morning sessions, whereas experiments were conducted in the afternoon sessions. A quiz competition was organized, which was well received by the participants. Afternoon experiments included: (1) GM Counter -Plateau and counting statistics, (2) Determination dead time of GM counter and (3) Gamma-ray Spectrometry using NaI(Tl) detector.

The valedictory function was attended by Dr. H.J. Pant, Head, IRAD, BARC. All the participants were given participation certificates and a book on “*Fundamental of Radiochemistry*”. IANCAS donated one NaI(Tl) detector and one G.M. Counter to NIT, Rourkela. Prof. Rupam Dinda, Local Convener of the Workshop, declared the Workshop a grand success and thanked IANCAS for conducting the Workshop. He emphasized that through this Workshop, the participants could acquire the knowledge of nuclear science and technology and their utilization for societal benefits. Prof. Samal of Department of Chemistry, NIT, Rourkela, proposed the vote of thanks. The Workshop including the inaugural and valedictory functions, were covered in local print media.

3. IANCAS Bulletins

During the reported period, IANCAS published three Thematic Bulletin given below.

Volume and Date	Title of the Bulletin	Guest Editor(s)
XVII (1) September 2021	Electrochemistry Over Functionally Modified Interfaces	Dr. A.K. Satpati & Dr. M.K. Sharma

XVII (2) December 2021	Chemical Characterization of Reactor Materials	Dr. Amrit Prakash & Dr. S. Jeyakumar
XVII (3) March 2022	Radiation Stability of Nuclear Materials	Dr. Pawan Kulriya & Dr. Vinita G. Gupta

4. IANCAS Annual Awards

In the reported financial year, the IANCAS annual awards were given twice, one for the year 2020 and the other for the year 2021.

IANCAS awards for the **year 2020** were bestowed in the 41st Annual General Body meeting held on 6th October 2021. The names of awardees are:

Dr. M.V. Ramaniah Memorial Award	:	Dr. K.L. Ramakumar Former Director, RC & IG, BARC
Dr. Tarun Datta Memorial Award	:	Dr. Arijit Sengupta Radiochemistry Division, BARC, Mumbai
Prof. H.J. Arnika Best PhD Thesis Award	:	Dr. Ashish Singha Deb Chemical Engineering Division, BARC, Mumbai

Dr. P.K. Pujari, President, IANCAS presented the citations and medals to the awardees. Dr. K.L. Ramakumar thanked IANCAS for the honor in his short award acceptance speech. Other Awardees also thanked IANCAS for the honor and presented a gist of their R&D contributions.

IANCAS awards for the **year 2021** were bestowed in the inaugural function of NUCAR-2021 on 22nd February 2022. The names of awardees are:

Dr. M.V. Ramaniah Memorial Award	:	Dr. A.V.R. Reddy Former Head, Anal. Chem. Division, BARC
Dr. K.S. Venkateswarlu Endowment Lecture Award	:	Dr. S. Rangarajan Former Head, Water and Steam Chemistry Division, BARC Facilities, Kalpakkam
Dr. Tarun Datta Memorial Award (02 Nos.)	:	Dr. Santosh Kumar Gupta Radiochemistry Division, BARC, Mumbai Dr. Tirumalesh Keesari Isotope and Radiation Application Division, BARC
Prof. H.J. Arnika Best PhD Thesis Award	:	Dr. K. Rama Swami Reprocessing Research and Development Division, Reprocessing Group, IGCAR

Director, BARC and Dr. P.K. Pujari, President, IANCAS presented the citations, medals and the cash prizes to the awardees. Dr. A.V.R. Reddy, in his short award acceptance speech, thanked IANCAS for the honor. Other Awardees also thanked IANCAS for the honor. The presentations by the IANCAS awardees were held in a special session of NUCAR 2021.

5. Report on IANCAS Co-Organized NUCAR-2021

IANCAS Co-Organized 15th biennial DAE-BRNS sponsored symposium on Nuclear and Radiochemistry (NUCAR-2021) was held in hybrid mode at DAE Convention Centre, Anushaktinagar, Mumbai during February 22-26, 2022. Inaugural function of the symposium was attended by Dr. A.K. Mohanty, Director, BARC and Dr. S. Kannan, Director, RC&IG. Dr. P.K. Pujari, Director, RC&IG and Chairman, NUCAR-2021 welcomed the gathering. Dr. Rajesh Pai,

Convener, briefed about the NUCAR-2021. Dr. Santosh Kumar Gupta, Secretary, NUCAR-2021 presented the vote of thanks.

There were 33 invited lectures, which included 16 lectures by the eminent scientists from abroad, 51 oral presentations from young researchers and 284 poster presentations. As the year 2021 happened to be the 125th year of discovery of radioactivity, a special session on this topic was arranged on 3rd day of the symposium to commemorate this important discovery. In the valedictory session of NUCAR-2021, IANCAS conferred 20 best poster and oral presentation awards to the young researchers.

6. IANCAS Regional Chapters Annual Reports (2021-22)

6.1. Activities of Southern Region Chapter (SRC)

In commemoration to 125th year of the discovery of radioactivity, IANCAS-SRC in association with IGCAR conducted several events. Important activities of the chapter during the reported period are given below.

1. Unveiling of weekly standees on scientists, noble laureates and events associated to radioactivity (20 standees).
2. Radioactivity webinars by eminent scientists on topics relevant to nuclear technology (13 Nos.).
3. Organizing quiz competition for college students, and art competition for school children on radioactivity. The winners of the two competitions were awarded and honoured in an event organized to celebrate 125 years of radioactivity.

IANCAS-SRC also conducted following webinars during the reported period.

Date	Speaker	Title of the talk
8/28/2021	Dr. K. Ananthasivan, IGCAR	The Story of Radioactivity
9/3/2021	Dr. K.L. Ramakumar, Ex-BARC	Seaborg Memorial Lecture 2021
9/11/2021	Dr. B. Venkatraman, Director, IGCAR	The Story of X-rays
9/18/2021	Dr. Vidya Sundararajan, IGCAR	Myths and facts about radiation
10/2/2021	Dr. C.V.S. Brahmananda Rao, IGCAR	The story of Atomic Bomb
10/16/2021	Dr. T.S. Lakshmi Narasimhan, MRPU	The Oklo phenomenon
10/23/2021	Dr. V. Karthik, IGCAR	Nuances of experiments with radioactive objects
10/30/2021	Dr. K.L. Ramakumar, Ex-BARC	Nuclear power reactors
11/18/2021	Dr. E. Prabhu, Chennai	Curie Memorial Lecture
11/20/2021	Dr. B.S. Tomar, Ex-BARC	The story of super heavy elements
11/27/2021	Dr. K.A. Venkatesan, IGCAR	Adventures in the discovery of Nuclear Fission
12/11/2021	Dr. Raju, IGCAR	Lise Meitner

Office Bearers of SRC for the years 2021 – 2024

President: Dr. K. Ananthasivan, Director, RpG, IGCAR
Secretary: Dr. N. Desigan, RpG, IGCAR
Treasurer: Shri S. Murugan, WMF(K), Kalpakkam
Members: Dr. P. Govindan
Dr. G.V.S. Ashok Kumar
Dr. T. Prathibha

6.2. Activities of Northern Region Chapter (NRC)

IANCAS Northern Chapter had several scheduled workshop activities during the reported period. However, due to Covid-19 restrictions, these workshops could not be conducted in the reported period, and were rescheduled in the next financial year.

Office Bearers of NRC for the years 2019 – 2022

President: Dr. M.S. Batra
Secretary: Dr. Taminder Singh
Treasurer: Dr. Vijay Kumar
Members: Prof. Shyam Kumar
Prof. B.S. Bajwa
Dr. Iqbal Singh
Dr. Samir Kalia

6.3. Activities of Tarapur Chapter

Following thematic series of lectures were conducted in the reported period by Tarapur Chapter in offline and online mode.

1. Advancements in Back-end of Nuclear Fuel Cycle – Indian Perspective- by Dr. C.P. Kaushik on 4th February, 2022.
2. Reprocessing of Spent Nuclear Fuel – by Shri Pillai Sreekumar on 25th February, 2022.
3. Chemical Quality Control Aspects of Nuclear Fuel - by Dr. D.K. Das on 25th February, 2022.

Office Bearers of Tarapur for the years 2021 – 2024

President: Shri R.B. Bhatt, FF, Tarapur
Secretary: Dr. Vinit Kumar Mittal, FF, Tarapur
Treasurer: Dr. Gitender Singh, FF, Tarapur
Members: Dr. T.P. Valsala
Dr. Anoop Kelkar
Dr. A. Baburajan

6.4. Activities of Eastern Region Chapter (ERC)

No report available from ERC.

ACKNOWLEDGEMENTS:

IANCAS is indebted to Shri K.N. Vyas, Chairman, AEC & Secretary, DAE, and Dr. A.K. Mohanty, Director, BARC for their continuous support and encouragement. Thanks are due to BRNS for financial support to sustain the activities of the Association. IANCAS thanks its Patron Dr. Anil Kakodkar, former Chairman, AEC for his support and encouragement. IANCAS acknowledges the dedicated efforts of its Workshop team, Resource Persons, Guest Editors and Contributors of thematic Bulletins. We would like to thank IANCAS regional chapters for their contribution in expanding the outreach programme of the Association all across the country. IANCAS also thanks Office Staff as well as supporting staff of Radiochemistry and Isotope Group for their help.

(S.A. Ansari)
General Secretary