

Annual Report of IANCAS for the year 2022-2023

Dear Members,

I welcome you all in the 43rd Annual General Body Meeting of IANCAS. It gives me immense pleasure to present the activities of our association during the period April 1, 2022 to March 31, 2023.

1. Membership

The Association has 1942 life members (LMs) and 19 corporate members as on March 31, 2022 with an addition of 36 life members during this financial year (2022-23).

2. IANCAS Workshops

2.1. 104th National Workshop at Khalsa College Amritsar during May 2 – 6, 2022

The 104th BRNS-IANCAS National Workshop on “*Radiochemistry and Applications of Radioisotopes*” was jointly organized by IANCAS & PG Department of Physics, Khalsa College Amritsar during May 2 - 6, 2022. Dr. Satyajeet Chaudhury, Fuel Chemistry Division was the coordinator of this Workshop. Dr. Taminder Singh, Dean Academic Affairs, Khalsa College Amritsar was the Local Convener. About 75 teachers and students from different colleges participated in this Workshop. All participants were given a Workshop Participation Certificate and a set of two IANCAS books (i) Fundamentals of Radiochemistry and (ii) Nuclear Materials.

In the inaugural session, Dr. Taminder Singh welcomed the guests. Principal Dr. Mehal Singh honoured the guests and addressed the gathering on the benefits of this Workshop. Dr. S. Chaudhary gave a summary of the lectures and practicals to be conducted in this Workshop, while Dr. P.C. Kalsi talked about the aims and objectives of the Workshop. Dr. P.K. Mohapatra, Head Radiochemistry Division, BARC, Mumbai delivered a key note address on DAE activities.

The technical program of the Workshop comprised of 13 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, and food preservation. All the lectures were held during the morning sessions, whereas experiments with GM Counter and NaI(Tl) detector were conducted in the afternoon sessions.

The valedictory session was presided over by Dr. S. Kannan, Director, RC&I Group, BARC and Vice-President, IANCAS. Dr. Mehal Singh, Principal, Khalsa College Amritsar welcomed Dr. Kannan and expressed his gratitude to IANCAS and BARC for conducting this Workshop. Workshop participation certificates were distributed to all the participants. On behalf of IANCAS, Dr. S. Kannan donated one NaI(Tl) scintillation gamma ray spectrometer and one GM Counter to the Khalsa College Amritsar. Dr. Taminder Singh presented the vote of thanks, and declared the end of the five days National Workshop. Each day of the Workshop, including the inaugural and valedictory function, was well covered by the electronic media and various local news papers (Punjabi, Hindi news papers) and English news papers.

2.2. 105th National Workshop at SKB University, Purulia during September 05-09, 2022

The 105th BRNS-IANCAS National Workshop on “*Radiochemistry and Applications of Radioisotopes*” was jointly organized by IANCAS & Dept of Physics, Sidho-Kanho-Birsha University (SKBU), Purulia, West Bengal during September 5 – 9, 2022. Dr. Dhanadeep Dutta, Radiochemistry Division, BARC was the coordinator for this Workshop. Dr. Chiranjib Barman, Assistant Professor, SKBU was the Local Convener. The Workshop was attended by about 50 registered participants from SKBU and other nearby Universities such as Calcutta University, Jadavpur University, NIT Durgapur and Diamond Harbour Womens’ University. Participants were given a set of two IANCAS books: (i) Fundamentals of Radiochemistry and (ii) Nuclear Materials.

Inaugural function of the Workshop was attended by Dr. Jane Alam, Director Physics Group, VECC, Kolkata, Dr. S. Chandra De, Controller of Examinations, SKBU, Prof. Ardhendu Sekhar Patra, Director, IQAC, SKBU and Prof. Susanta Lahiri, Adjunct Professor, SKBU. In the inaugural function, Dr. Jane Alam delivered a keynote lecture on the “*fundamentals of radiation and matters of the Universe*”. Dr. Dhanadeep Dutta briefed about the theme of the Workshop. In his brief address, Dr. S. Chandra De urged the participants for their active participation in the Workshop to get the experience and knowledge of radiochemistry and radioisotope by the resource persons.

The technical program of the Workshop comprised of 13 Lectures, covering the fundamentals of nuclear and radiochemistry, interaction of radiation with matters, radiation detection and measurements, chemistry of actinides and trans-actinides, nuclear reactors, health safety, production and application of radioisotopes in healthcare, agriculture, food preservation and industry. All the lectures were held during the morning sessions, whereas the experiments were conducted in the afternoon sessions. The experiments conducted were: (1) plateau and dead time determination in GM Counter, (2) Gamma-ray energy calibration and attenuation coefficient determination using NaI(Tl) detector, (3) U/Th separation by solvent extraction, and (4) Radioimmunoassay.

The valedictory function was attended by Prof. Deepak Kumar Kar, Vice Chancellor, SKBU and Dr. Tapas Das, Head, RPhD, BARC. All the participants were given participation certificates. On behalf of IANCAS, Dr. Tapas Das donated one NaI(Tl) scintillation gamma ray spectrometer and one GM Counter to SKBU. Prof. Kar in his valedictory address, declared the Workshop a grand success. He mentioned that this kind of Workshop may be regularly arranged for the students to acquire knowledge of Nuclear Sciences and Technology and their utilization for mankind. The Workshop was concluded with the vote of thanks by Dr. Arunasis Bhattacharyya, RCD, BARC.

2.3. Local School / College Workshops

During the reported period, IANCAS conducted two one day college Workshop. The first was conducted at Jai Hind College, Mumbai on 18th July 2022. The second was held at Rajiv Gandhi College of Science and Commerce, Vashi, Navi Mumbai on 6th August 2022. The participants in these Workshops were B.Sc. students of Physics and Chemistry Department from their respective colleges.

3. IANCAS Bulletins

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

Volume and Date	Title of the Bulletin	Guest Editor(s)
XVIII (1) June 2022	Neutron and X-ray based techniques for material characterization	Dr. K.K. Pandey & Dr. Jitendra Bahadur
XVIII (2) September 2022	Sensors for actinides and lanthanides	Dr. Chhavi Agarwal & Dr. B. Mahanty
XVIII (3) December 2022	Green solvents for science and technology	Dr. D. Goswami & Dr. Ruma Gupta
XVIII (4) March 2023	Role of DFT in understanding the complexation behaviour of lanthanides and actinides	Dr. Mahesh Sundarajan

4. IANCAS Regional Chapters Annual Reports (2022-23)

4.1. Activities of Southern Region Chapter (SRC)

With the ease in Covid-19 restrictions, IANCAS-SRC continued to conduct its regular radioactivity workshops in schools and colleges. Following Workshops were conducted in the reported year.

List of IANCAS-SRC Radioactivity Workshops for the year 2022-23

No.	Institute Name	Date
1	Thassim Beevi Abdul Kader Women's College, Ramanathapuram	01-08-2022
2	ASAN Memorial School, Chennai	24-08-2022
3	Stella Maris Women's College, Chennai	25-08-2022
4	Vidhya Matriculation Higher Secondary School, Chennai	10-09-2022
5	SCS Matriculation Higher Secondary School, Chromepet, Chennai	14-10-2022
6	Reprocessing Group IGCAR, Kalpakkam	21-03-2023
7	ATSA Polytechnic College, Thirukazhukundram	24-03-2023

IANCAS-SRC also organised following Seaborg and Curie Memorial Lectures in this year.

Date	Speaker	Title of the talk
16-08-2022	Dr. P.K. Mohapatra, BARC (Seaborg Memorial Lecture)	Recovery of radio ruthenium from radioactive feeds – Challenges and strategies
29-03-2023	Dr. Tapas das, BARC (Curie Memorial Lecture)	Radioisotopes for better health

4.2. Activities of Northern Region Chapter (NRC)

During the financial year 2022-2023, NRC conducted following workshops:

(i) SSM College, Dinanagar

A two days Workshop at SSM College, Dinanagar was conducted during May 20 – 21, 2022. The inaugural session began with a welcome note by Dr. R.K. Tuli, Principal of the college. Prof. Annu Sharma, Kurukshetra University, Dr. P.C. Kalsi and Dr. Taminder Singh delivered the expert lectures on introduction to radioactivity, interaction of radiation with matter and applications of SSNTDs. To provide hands-on experience to the participants, experiments with GM counter were conducted. About 250 UG and PG students and 50 faculty members participated in this workshop.

(ii) Sri Guru Gobind Singh College, Chandigarh

A Two Days Workshop was conducted at Sri Guru Gobind Singh College, Chandigarh during March 25 – 26, 2023. Dr. S. Kannan, Director, Radiochemistry & Isotope Group and Vice President, IANCAS was the Chief Guest and Keynote Speaker in this workshop. Workshop included a combination of lectures and practical sessions conducted by experts in the field of nuclear science and technology. It aimed to provide a comprehensive overview of the principles and techniques of radiochemistry, and the various applications of radioisotopes in different fields. About 400 UG and PG students and 50 faculty members participated in this workshop.

In addition to the two workshops, NRC organized one day Seminar on Peaceful Use of Atomic Energy on November 4, 2022 at SSM College, Dinanagar. Dr. S. Kannan, Director, Radiochemistry & Isotope Group and Vice President, IANCAS was the Chief Guest and Keynote Speaker in this Seminar. SSM College Dinanagar is the girl's college catering education to the girls of rural and border areas. One GM counter was donated to this college by IANCAS for teaching and research activities. About 200 M.Sc. and B.Sc. students and 50 teachers participated in this seminar.

4.3. Activities of Tarapur Chapter

Two days DAE-BRNS 3rd national symposium on the topic “Recent Advances in Nuclear Fuel Cycle Activities (NUFUC-2022)” was organized on May 20 – 21, 2022. The symposium was conducted via offline as well as online mode. More than 200 delegates as well as invitees attended the symposium via offline mode and more than 50 delegates/invitees joined through online mode. Seventeen invited talks were delivered by eminent scientists and experts from the respective fields. Apart from this, there were 8 oral presentations and 86 poster presentations from the contributory papers in the field of nuclear fuel cycle.

4.4. Activities of Eastern Region Chapter (ERC)

A one-day outreach seminar on “*Wonder Materials, Energy and Radiation*” at Rama Devi Women's University was held on 27th July 2022. In this seminar, participants were from Kamala Nehru Women's College, Sri Satya Sai Women's College, and Maharshi Women's College. The aim of the seminar was to draw the attention of the science graduates towards nuclear sciences and related advances in physics. Around 300 girl students and 50 teachers

participated in the seminar. The seminar was inaugurated by Prof. Karuna Kar Nanda, Director, IOP and President, IANCAS-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 to BRNS for the 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