



**GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
INDIRA GANDHI CENTRE FOR
ATOMIC RESEARCH
KALPAKKAM 603102, TAMIL NADU**

No. DIR/2025/

5th February, 2025

Subject: Monthly Report to Prime Minister for January 2025

[Ref: MSG/IGRK/06/93/c-9 dated April 22, 1993]

1. Fast Breeder Test Reactor (FBTR)

- ❖ The reactor was in Fuel Handling state for the replacement of Nickel subassemblies, which have reached their operational fluence limit. After the replacement, reactor was made critical on 17th January 2025 for critical height measurement.
- ❖ Twelve thoria sub-assemblies of 9th ring were swapped with 10th ring sub assemblies to enhance their residence time based on the limiting Linear Heat Rate.
- ❖ Iodine retention efficiency test was carried out for both banks of Reactor Containment Building exhaust filter and the result were found to be within the technical specification limit.
- ❖ Currently the reactor is in shutdown state to facilitate planned major maintenance activities and preparatory work for the upcoming 34th irradiation campaign.

2. KAMINI

- ❖ Reactor was operated at 1 kW towards the irradiation of following samples based on user requirements
 - 2 Gold samples at PFTS (Pneumatic Fast Transfer System) location for verification of power calibration
 - 2 gold samples at PFTS (Pneumatic Fast Transfer System) and North thimble location for neutron flux measurement.

3. Fuel Reprocessing

- ❖ The third campaign of limited hot run for processing of 60 nos. of FBTR spent fuel pins of burnup 155 GWd/t is in progress at Demonstration Fuel Reprocessing Plant (DFRP). As a part of the campaign, co-extraction, co-stripping, Aqueous partitioning and Uranium stripping has been completed. Pu and U solutions are being processed in the RC laboratory.
- ❖ Procedure has been established for estimation of Neptunium in FBTR spent fuel and the quantity of Neptunium -237 has been estimated.
- ❖ At CORAL (*COmpact Reprocessing facility for advanced fuels in Lead shielded cells*) Facility, preparatory work for commencing the 67th reprocessing campaign is being carried out.

4. Materials Science and Engineering

- ❖ Remote detection of low concentration of Perfluorooctanoic acid (PFOA), an emerging plastic contaminant in the environment (ex: from non-stick surfaces) and Dimethyl methylphosphonate (DMMP), a simulant for chemical warfare agent (Sarin) using photo-thermalmicro-cantilever deflection spectroscopy is demonstrated. Method developed has high chemical selectivity (mid-IR based) and is extremely sensitive for detecting target molecules on a surface (1pg/cm²).

5. Safety, Environment and Health


- ❖ Radiation Metrology service for calibration of gamma radiation measuring instruments which includes Gamma Survey meters, Teletectors, Gamma Dosimeters, Area Gamma Monitors, Area Zone Monitors, and Personal Radiation Detector was rendered to various DAE institutions. Additionally, the Calibration service was extended to Non-DAE institutions, such as Govt. Tirunelveli Medical College & Hospital. Total of 49 instruments were calibrated for the month of January, 2025.
- ❖ Low dose (0.5 and 2Gy) irradiation studies on Blood samples were also carried out in the Gamma Calibration facility.
- ❖ Gamma Irradiation services were provided to King Institute of Preventive Medicine and Research, Chennai for irradiating amnion graft dressing samples (25 nos) to 25 kGy of dose for sterilization purpose. Radiation stability studies on base metal (SS-304 L) and weld metal for 1000kGy and HDPE composites was irradiated from 100kGy to 500kGy. Hemolymph of Crab was irradiated for 100Gy to study its DNA damage.


6. Technology Incubation Activities


- ❖ Incubation Centre of IGCAR (IC-IGCAR) participated in TN BEAT EXPO 2025, a flagship event organized by the Tamil Nadu Government Corporation, TAHDCO on 25th and 26th January'2025 at Chennai Trade Centre in Chennai. Focus of this two-days Expo was to build entrepreneurs from the marginalized communities such as the Adi Dravidars and Tribals. A stall was set up by IC-IGCAR Team to showcase IGCAR's technology incubation and licensing opportunities through videos and posters. The event had a reported footfall of around 37,000 visitors and stall of IGCAR was well attended.


7. Academic Interactions

❖ Events/Workshops

 The “**Anu Awareness Yatra - 2025**” is being organized by IGCAR, Kalpakkam, in collaboration with professional bodies from January 20 to February 7, 2025. This year, the yatra commenced from Kalpakkam, Tamil Nadu, and will conclude at Kaiga, Karnataka, covering 1,100 km and many educational institutions. The curtain-raiser event was held at AECS, Anupuram, on January 20, 2025, and the yatra was flagged off by Shri C. G. Karhadkar, Director, IGCAR, in the presence of senior officials from IGCAR and other DAE units.

 As part of OCES outreach programme, **Placement Officers Meet** was organized at IGCAR on 8th January, 2025. Around 27 placement officers from various colleges across Tamil Nadu actively participated in this meet.

 A One day theme meeting on ‘**Embracing the Digital Age: Reimagining Library Resources Management**’ was organized by the Scientific Information and Networking Division on 24th January, 2025 at Sarabhai Auditorium, IGCAR, Kalpakkam.

 **World Hindi Day** was celebrated on 10th January, 2025 with the theme ‘**Developed India @ 2024 –Role of nuclear science and Technology**’. Shri Dinesh Kumar Shukla, Chairman, AERB graced the occasion as the chief guest and delivered a special lecture on ‘**Small Modular Reactors (SMRs) - Relevance and Challenges**’ and **Dr. Shashikant C.U. Patne, MD, Dean (Academics) & Professor (Pathology), Homi Bhabha Cancer Hospital & Mahamana Pt. Madan Mohan Malviya Cancer Centre, Varanasi, Uttar Pradesh delivered an**

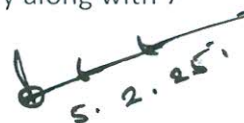
an invited Talk on, 'tobacco-related cancers in India'.

- ✦ As part of the **Quality Circle Awareness Programme**, Shri S. Anil, DGM-Production & Manufacturing Excellence, M/s. J K Tyres & Industries Ltd, Chennai Tyre Plant, delivered a lecture on Total Quality Management through Quality Circles on 3rd January, 2025.

❖ **Visit of Eminent Dignitaries**

- ✦ Shri Satyarup Siddhanta, Indian Mountaineer, a Guinness world record holder for being the youngest in the world to have climbed the highest mountains of all the seven continents (7 summits) and the highest volcanoes of all the seven continents (volcanic 7 summits) visited IGCAR and presented the IGC Colloquium on, "**Breaking Barriers, Shattering Limiting Beliefs**" on 17th January, 2025.
- ✦ **Prof. Shouvik Chatterjee, Dept. of Cond. Mat. Phys. & Mater. Sci., TIFR** visited the Materials Science Group, IGCAR and delivered a lecture on "**Designed quantum heterostructures**" on 30th January, 2025

- ❖ **Projects/Internships:** 04 (Under Graduation) and 12 (Post Graduation) students from different college
- ❖ **Industrial Visits:** 04 colleges and 03 Schools
 - ✦ **Total visitors:** 329 Students & 17 Faculties
- ❖ **Special visits:** Shri Ajit Kumar Singla, IPS, Inspector General of Police, Puducherry along with 7 persons visited the centre on January 02, 2025


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Director, IGCAR

Shri Sunil Ganju
Secretary, AEC
Strategic Planning Group
DAE, CSM Marg, Mumbai 400 001.

Photographs of Visits/ Programmes during January-2025



Flag-off ceremony of Anu Yatra-2025 organized on 20th January, 2025



**Placement officers meet conducted on 10th January, 2025
as part of the OCES-Outreach Programme-2024**



Celebration of World Hindi Day on 10th January, 2025



One day Theme meeting on 'Embracing the Digital Age: Reimagining Library Resources Management' organised on 24th January, 2025

Dr. M. Mathivendan, Hon'ble Minister for Adi Dravidar Welfare, Tamil Nadu, handing over a memento to Head, IC-IGCAR for IGCAR's participation in Tamil Nadu Government's TN BEAT EXPO 2025 Event on 25th and 26th January'2025 at Chennai to build entrepreneurs from Adi Dravidars & Tribals.



Participation of Incubation Centre-IGCAR in TN BEAT EXPO 2025 during 25-26 January, 2025



Quality Circle Awareness Programme held on on 3rd January, 2025



Shri Satyarup Siddhanta delivered the IGC Colloquium on, 'Breaking Barriers, Shattering Limiting Beliefs' on 17th January, 2025