



INDIAN CRYOGENICS COUNCIL

(Registration No: S 16588 of 1975-1976 dt. 04. 09. 1975)

(Regd. Office: Jadavpur University, Calcutta- 32)

Minutes of the Meeting of the Executive Committee (ICC)

Held online on WebEx

(January 9, 2021, Time: 11.00 am to 1.45 pm)

Due to the continuing unprecedented Covid 19 conditions the meeting of the Executive Council of the ICC took place on a virtual video conference platform on January 9, 2021.

The audio recording of the meeting is available at

https://drive.google.com/file/d/1iEZY55AUH7PzYKcTnULpnA_XXk6jyTub/view?usp=sharing

List of attendees is below:

- Professor M.D. Atrey (Chair) President (Professor and Dean(R&D), IIT Bombay)
- Dr. T.S. Datta Chief-Editor (Visiting Professor, IIT Kharagpur)
- Dr. Rakesh Bhandari Past President (Ex-Director, VECC Kolkata)
- Dr. R.G. Sharma Vice President (Ex-Scientist, NPL, IUAC New Delhi)
- Professor H.B. Naik Vice President (Professor, SVNIT Surat)
- Professor. Sunil Sarangi Vice President (Ex- Director, NIT Rourkela)
- Professor. R. Karunanithi Vice President (Professor, IISc Bengaluru)
- Dr. Soumen Kar Secretary (Technical) (Scientist, IUAC Delhi)
- Dr. Tamal Bhattacharyya Secretary (Administration) (Scientific Officer, VECC Kolkata)
- Dr. Uttam Bhunia Treasurer, (Scientific Officer, VECC, Kolkata)
- Professor. Subhash Jacob ICEC Representative (Ex-Professor, IISc Bengaluru)
- Dr. V.L.Tanna Member (Scientific Officer, IPR Gandhinagar)
- Dr. Biswanath Sarkar Member(ITER-France)
- Mr. Parag Kulkarni Member & Webinar Committee Convener (Director, INOX India Pvt.Ltd Vadodara)
- Dr. V. Narayanan Member (Director, LPSC/ISRO Trivandrum)
- Professor. R. Singh Member (Hon.Professor, University of Hyderabad Hyderabad)
- Dr. Tushar Bhowmick Member (Director, Tudinous Kryos Pvt.Ltd Delhi)
- Professor. V. V. Rao Member2018-2020 (Visiting Professor, IIT Kharagpur)
- Professor. S.C.Sarkar Member (Professor, Jadavpur University)
- Professor. P.S.Ghosh Member(Professor, IIT Kharagpur)
- Dr. Mukesh Goyal Co-opted Member (O/G, CrTD, BARC, Mumbai)
- Dr. D.S.Nadig Co-opted Member(Principal Research Scientist, IISc Bengaluru)
- Professor Subimal Saha Co-opted Member (Ex-Project Director, VECC, Kolkata)
- Mr. Subrata Banerjee Invitee (Auditor, Kolkata)(Only for the Accounts agenda point, could not attend due to connectivity issues)
- Ms. Tania Gupta Secretarial Assistant (ICC Delhi)



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1. Professor Atrey warmly welcomed the EC members to the meeting.

Deliberations

Varous items were then taken up before the committee members as per the agenda, which are summed up below:

2. **Confirmation of the minutes of the EC meeting dated 1st August 2020:** The members unanimously confirmed the minutes of the previous EC meeting held online on 1st August, 2019. The action points of this meeting were discussed and agreed upon.
3. **ICC Accounts:** Dr. Uttam Bhunia presented the ICC accounts for FY 2018-19. Mr.Subrata Banerjee had connectivity issues and could not participate. Mr.Parag Kulkarni pointed out the following points:
 - A. The tax paid for FY 2018-19 did not match the calculated tax
 - B. The calculations for capital gain have been done with indexing which attracts a tax of 20%, where in we could have calculated the tax without indexing at 10% rate.
 - C. As all 4 zones have their own separate activities and audits, we should have all the audit reports zone wise as annexure in the presentation.

Action: Prof.Atrey requested Mr.Kulkarni (Convenor), Prof.Datta , Dr.Kar, Dr. Bhunia and Mr.Banerjee to form a committee to look in to the points and also suggest a policy and recommendation for the coming years. This committee is to meet at the earliest before filing the returns for FY 2019-20.

4. **IJC Status:** Prof T S Datta thanked all Editors along with President (ICC) and Ex Chief Editor (Dr R G Sharma) for their valuable suggestions. He appreciated the efforts by Dr Soumen Kar and Ms.Tania that were put in the last 3-4 months to bring out the journal. He also pointed out that we have printed only 30 hard copies seeing the demand of the same.He also updated that since NSCS28 is delayed by one year, the papers for the next volume 46 will be from the conference organized by ISRO on Cryogenics for Space. Prof.Datta confirmed that the next volume with 25-30 papers from this conference will be published by mid 2021. Prof.Datta also pointed out that almost 30% of the papers presented in the NSCS27 were rejected for various reasons and that it's our endeavor to improve the quality of the journal. Prof.Atrey appreciated Prof. Datta's work on the journals.
5. **UGC recognition:** As Prof.Atrey could not travel to Pune to meet Mr.Patwardhan, due to covid,Dr.Sharma suggested that as lots of work and follow up has been done on this front, we should not leave it.
6. **NSCS28:** Prof.Datta confirmed the final dates to be from 2nd- 4th February 2022. There were discussions that these dates may clash with the GATE dates falling on 5th-6th Feb 2022, it would be difficult for the Professors conducting the GATE exam and the students who are appearing in the GATE exam to attend the NSCS28. Prof.Datta apprised that he had various discussions with Prof.Atrey also and seeing the non-availability of the auditorium and the guest house, these dates have been finalised. It was decided that for the students appearing for the GATE exams, their papers for presentation may be considered on the 1st or 2nd day of the conference and if needed give the option of online.



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7. Zonal activities:

West Zone: Prof.Naik apprised the EC with activities in the following two activities in the west zone:

- A. Workshop in TIFR in January 2020 with more than 30 participants
- B. EC Meeting

South Zone: Prof. Karunanithi confirmed no activities in south zone

East Zone: Prof. Sarangi commented nothing specific in east zone but with corona fading there will be opportunities for events. There will be smaller events also lined up to be made a part of NSCS28

North Zone: Dr. R G Sharma informed that the north zone could not carry out any activity during this period.

8. **Webinars:** Mr. Kulkarni updated the members regarding the two webinars conducted so far , 1st on 3rd October 2020 on LNG & its potential in India and the 2nd on 5th December 2020 on Cryogenics & Quantum Computing. Both these webinars were a huge success. We are planning a 3rd webinar on the topic ITER & Its Contribution, in February/March 2021. Dr.Sarkar will be coordinating the webinar alongwith Mr.Kulkarni. We plan to hold atleast one webinar per quarter for promoting cryogenic activities. Dr. Bhandari congratulated Mr.Kulkarni and pointed out that the webinars were really useful. He made the following suggestions:

- A. He suggested that accelerator related cryogenic activities are picking up in VECC, BARC , we can have webinars in collaboration with Fermi labs etc. Dr.Sharma also confirmed this suggestion.
- B. India has to adopt dry ice technology for Covid vaccine cold chain at very low temperatures of 2-8 degrees and -80 degrees as in case of Pfizer vaccine. We could organize some awareness lecture or something similar. Prof. Atrey pointed out that it is more of a transportation problem rather than technology.

9. **ICC Membership drive-Individual and Corporate :** Mr.Kulkarni pointed out that larger memberships are lacking still and we need more participation of people. He suggested that we can provide value add to the memberships by holding webinars, access to data, virtual platform for questions to be put up and answers to be available. He suggested that the webinars can be restricted only to ICC members only, the following was deliberated:

- A. Prof.Jacob suggested it should be open to all interested as people will get drawn to ICC.
- B. Prof.Sarangi also suggested it should be open to all and promote the each one of us get 2 people policy to increase the membership. He further stated that the 1st year membership should be free and it should be included in the registration fee of the Conferences. He also stated that we can have a more aggressive approach and our own members should induct additional members.



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- C. Dr.Bhandari suggested that we need to connect at grass root level, many industries require expertize in low temperature and members could provide their expertize through ICC membership only.
- D. Webinars should cover topics of general interest to attarct more people for membership.
- E. Prof.Atrey suggested not to limit the webinars to members only and include the membership fees in the conference registration fee.
- F. Prof. Sarkar pointed out that let the webinars be an outreach programme and after 4-5 webinars limit to members only. He also suggested that has many persons in ITER who could possibly become members and fees etc were discussed.

Action: Prog.Atrey suggested a membership drive committee to be formed to look into the matters of fee restructuring for Indian and Foreign nations keeping in mind the legalities in case of Foreign memberships. Their findings and restructuring of the individual and corporate membership to be presented in the next EC meeting which will be scheduled in six months time. The members of the committee are: Mr. Bhowmick (Convenor), Dr.Goyal, Prof.Singh. The committee may get required information from Dr.Soumen Kar and Ms.Tania Gupta and be in contact with Dr.Sarkar.

10. **ICC members directory:** Dr.Sharma suggested that we should come up with a directory have a hardcopy available as directory of the ICC members. He informed about a directory of Ex-NPL personnel which is published with all the contact details and area of expertise of the individuals, which is very handy and useful. Prof.Sarangi agreed that this was a good initiative and would help the industries and the membership drive. Dr.Bhowmick pointed out that printed hard copies is old fashioned and soft copy is good enough. He also suggested the the hard copy can be given complimentary in the registration kit of the conferences.

Action: Prof.Atrey pointed out that it could be beneficial for the industries and that this could be started zone wise first and the data can be collated in the end.

11. **Instituting Chair / Honorary Professorship:** This matter was taken up by Prof.Singh, he pointed out that its been a matter from past many years and have not been able to do anything regarding the same. Prof. Datta explained that this is a bit complex and was discussed at length in two EC meetings at Baroda and Kolkata after IPR conference 5 years back but could not materialize.
12. **Academia industry interaction-ICC role:** This agenda point was abandoned as Prof.Venkatathnam was not present at the the time of discussion of this matter.
13. Prof.Jacob updated regarding the next ICEC-28-ICMC 2022 to be held in Hangzhou during April 25-29 2022.
14. On request of Dr.Sharma, Dr.Sarkar briefed the members the status of ITER, for sake of curiosity of all as follows. ITER has the following 3 parts:



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- A. **Tokamak machine:** This comprises with major components magnets (TF coils, PF coils, Central Solenoid, Correction Coils etc.), vacuum vessel, thermal shield and cryostat as well as many other auxiliary systems inside cryostat as well as vacuum vessel for distribution of fluids to the systems. Then there are several in-vessel components inside the cryostat, such as first wall, divertor etc. Cryostat is the in the Indian scope and is almost complete. The base section, which is 30 m diameter is already installed and the lower cylinder is also ready and placed and now the welding is going on with tolerance level of 1mm. The cryostat will be closed with closing of the TOP lid by 2024. On the magnet front, Dr. Sarkar informed that 9 TF magnets will be coming from Europe and 9 TF from Japan and ITER has received 2 TF magnets, one each from Europe and Japan as of now, huge TF coils of 17 x 9 m D-shaped TF magnets. Regarding the vacuum vessels, which will arrive to ITER in 9 sectors, each sector is 13 metres high, 6.5 metres wide and 6.3 metres deep, is divided in supply from Europe (6 sectors) and Korea (3 Sectors). ITER has already received 1 vacuum vessel sector from Korea and a tool also arrived from Korea to hold the 2 huge TF coils and one sector of vacuum vessel with weight of approx 1300 tonnes, as one assembly sector. The final testing and acceptance of the tool has been completed and the assembly will start from March 2021.
- B. **Plant:** Cooling water plant is the biggest plant in ITER supplied from India by L&T. It is already installed and the pre commissioning started from last year and the commissioning will begin from March 2021. This will supply cold water to all the systems of ITER. Liquid Helium plant is located in separate plant building that houses three Helium plants along with cold Helium distribution boxes. The first part of commissioning of the Liquid Helium Plant will start from third quarter of 2021.
- C. **Distribution system:** The cold Helium distribution is required inside the Tokamak complex, while the plants are located outside in the plant building. The contributions made by INOX in establishing the cold helium distribution network have been really commendable and applauded even by the Director General. It is a proud feeling that due to the quality of work maintained by INOX, India has a good image.

Dr. Sarkar also added that one of his most important contributions is Vacuum Vessel Pressure Suppression System (VVPSS) and Hydrogen Mitigation System (HMS) operating at very high steam temperatures. Dr. Sarkar is also responsible for the real nuclear part for which he has set-up an experiment centre in Italy with University of Pisa. He invited the members to see the plant facility if they are visiting Europe. The technology used is different from the regular one and the French Nuclear authority has to approve this technology and the process qualification.

Dr. Sharma enquired certain information and update on the plasma and cryostat part. More details will be shared in the next webinar.

Prof. Atrey commented that this was a good discussion and that we are really proud of not only INOX, L&T and other Indian Companies but also the Indians



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working for ITER Dr.Sarkar is to manage the concerned persons for the dedicated webinar. . Dr.Sarkar also said that those interested in seeing the plant can call him on whatsapp depending upon his availability.

15. Prof.Atrey congratulated Dr.Narayanan on behalf of ICC on the LOX Methane based cryogenic engine fired by ISRO last month. Dr.Narayanan updated the members ISRO plans to have a complete LOX methane engine in next 2 years. Successful tests were completed last month and further technological demonstrations are going on.

The meeting ended with a vote of thanks to the chair. The next EC meeting to be held in June 2021. (The members are requested to hear the recording for full details on points 14 & 15)