

Report of 81st Annual Session of Indian Ceramic Society and International Conference on "Expanding Horizons of Technological Applications of Ceramics and Glasses (EH-TACAG'17)"



Seating from L to R: Mr. B. S. Ganguli (President, AIPMA), Dr. Barundeb Mukherjee (President, IIC), Dr. H. S. Maiti (Ex-Director, CGCRI, Kolkata), Mr. Shreekanth Somany (President, InCerS), Padma Vibhushan Dr. K. H. Sancheti (Chief Guest), Dr. B. B. Ahuja (Director, College of Engineering, Pune), Dr. N. B. Dhokey (Co-Chairman of organizing committee and Head of Metallurgy and Materials Science Department, COEP), Dr. S. P. Butee (Convener, EH-TACAG'17) and Prof. A.R. Kulkarni (Conference Chair, EH-TACAG'17).

81st Annual Session of Indian Ceramic Society and International Conference on "Expanding Horizons of Technological Applications of Ceramics and Glasses(EH-TACAG'17)" was held in conjunction with the 69th Annual Session of All India Pottery Manufacturers' Association and 43rd Annual Session of Indian Institute of Ceramics at College of Engineering, Pune during 14th -16th Dec'17. At the outset, one minute silence was observed in the memory of Dr. V.N. Vaidya, former President, Indian Ceramic Society, who expired in Oct'17 this year in the midst of preparation going on for the conference, who was instrumental in bringing this conference to Pune. The conference was inaugurated by the Chief Guest of the event Padma Vibhushan Dr. K. H. Sancheti, Founder Director and Chief Orthopedic Surgeon, at Sancheti Institute for Orthopedics and Rehabilitation (SIOR), Pune. The other dignitaries who graced the occasion were guest of honour Dr. H. S. Maiti (Ex-Director, CGCRI, Kolkata), Mr. Shreekanth Somany (President, InCerS), Dr. Barundeb Mukherjee (President, IIC), Mr. B. S. Ganguli (President, AIPMA), Dr. B.

B. Ahuja (Director, College of Engineering, Pune), Prof. A.R. Kulkarni (Prof. IIT Bombay and Conference Chair), Dr. N. B. Dhokey (Co-Chairman of Organizing committee of EH-TACAG'17 and Head of Metallurgy and Materials Science Department, COEP), Dr. S. P. Butee (Convener, EH-TACAG'17).



Inauguration of exhibition (L to R) Dr. Chandresh Agarwal (MD, Imerys Ceramics (India) Pvt Ltd.), Dr. N.B. Dhokey, Dr. B.B. Ahuja, Dr. K.H. Sancheti, Mr. Shreekant Somany, Mrs. Vaishali Poddar (Exhibition In-charge, EH-TACAG'17)

The inauguration began with the Saraswati Puja and Lighting of e-lamp by Mr. Shreekant Somany, followed by welcome of all dignitaries and delegates by Prof. Ajit Kulkarni. During the inaugural keynote address, Dr. K. H. Sancheti highlighted the importance of ceramics in medical field and Mr. Shreekant Somany presented the growth and challenges for the Indian ceramic industries. Dr. Barundeb Mukherjee and Mr. B. S. Ganguli presented the role of IIC and AIPMA respectively in the development of the Indian ceramic industry. Prof. Ahuja gave a brief of the recent technical contributions made by COEP such as Swayam satellite etc. in the development of our country and technical excellence achieved by COEP students in various competitions such as Baja etc. Dr. Dhokey highlighted the various academic programs of the department and the collaborative R&D of the department going on with the various govt. funding agencies like AICTE, DST, BRNS, NRB, DRDO, ISRO etc. The Conference Souvenir was also released during the inaugural ceremony.

Major awards of Indian Ceramic Society such as D. N. Agrawal Memorial Award (conferred to Dr. K. G. K. Warriar, Retd. Chief Scientist & Emeritus Scientist, CSIR-NIIST, Thiruvananthapuram, Kerala), Refractory Technologist Award (Dr. Jayant Kumar Sahu, Asst. Executive Director (R&D), Refractory Division, OCL India Ltd., Sundargarh, Orissa), Prof. Sasadhar Ray Memorial Award (Electrominerals Division of Carborundum Universal Limited [EMD, - CUMI] , Kochi, Kerala), Dr. R. L. Thakur Memorial Award (Dr. Kolan Madhav Reddy, Asst. Prof., School of Materials Science and Engineering, Shanghai Jiao Tong University, China), Malaviya Award – 2017 (received by Dr. Anupam Purwar, Visiting Scientist, Centre of Excellence in Hypersonics, IISC, Bangalore), Best Chapter Award-2017 (ICS-Karnataka Chapter, received by Mr S. Chandrashekar, Hony. Secretary, Mr. Namboodiri S.N. and Mr. B.K. Mahenthiran) were given. Other awards from AIPMA such as M G Bhagat Award (Mr. Sarit Kumar Kundu, Sr. VP, Grasim Ind. Ltd., Aditya Birla Insulators, Hooghly, W.B.) and G.K. Bhagat Award (Smt. Vanmala Jain, Kuprakabi Ceramic Design Studio, Jalgaon) were also given.

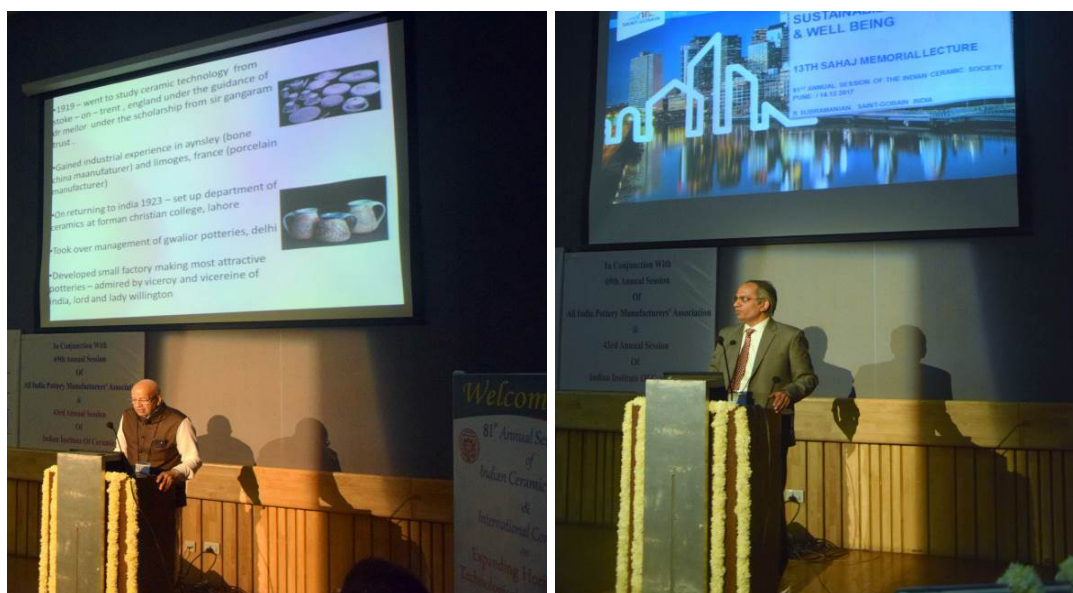


Award ceremony: Dr. K. H. Sancheti conferring “D. N. Agrawal Memorial Award” to Dr. K. G. K. Warriar.

For the very first time in the history of Indian Ceramic Society, Conference App named "EH-TACAG'17" was launched and used by every delegate for conference updates. The conference received support from sponsors like Borosil Glass Works & TRL Krosaki Refractories Ltd. (Platinum), Morganite Crucible (India) Ltd. (Gold),

PVA Industrial Vacuum Systems GmbH & Somany Ceramics Ltd. (Silver), Indian Ceramics (Messe Meunchen India Pvt. Ltd.), H & R Johnson (India) - A Div. of Prism Cement Ltd. (Endura), Imerys Ceramics (India) Pvt. Ltd., Bhise Ceramics Pvt. Ltd. and NTB Hightech Ceramics (Associate Sponsor). The industrial exhibition comprised of twenty two stalls. In addition there were twenty one advertisers. The event was co-sponsored by government organizations, namely, AICTE, ARCI, BRNS, CSIR, and SERB.

The inaugural ceremony was followed by inauguration of the exhibition at the auspicious hands of Mr. Shreekant Somany. The M.G. Bhagat Memorial lecture was delivered by Dr. K.H. Sancheti on "Omnipresent Ceramics – Bioceramics". It was followed by Sahaj Memorial Lecture given by Dr. R. Subramaniyan from Saint - Gobain India on "Glass & Architecture: Sustainability & Well Being." Dr. K. Muraleedharan, Director, CGCRI, Kolkata chaired these two award sessions. After these two memorial talks, plenary talk sessions were conducted. There were four plenary talks given by eminent speakers like Prof. Jürgen Rödel on "Lead-free piezoceramics: The road from basic science to application", Darmstadt University-Germany; Prof. Jose Maria da Fonte Ferreira on "Tailoring the Key Features of Alkali-Free Bioactive Glasses", University of Aveiro-Portugal; Prof. Sudipta Seal on " Rare Earth Oxides in regenerative Nanomedicine", University of Central Florida-USA; and Prof. S.K. Sundaram on " Ultrafast Materials Science and Engineering", Alfred University-USA. The proceedings of the first day concluded with the 'Annual General Meeting' of Indian Ceramic Society and 'Indian Institute of Ceramics' followed by cultural program arranged by COEP students and conference dinner.



Memorial lecture (L to R): Padma Vibhushan Dr. K.H. Sancheti delivering M.G. Bhagat Memorial lecture on "Omnipresent Ceramics – Bioceramics" and Mr. R. Subramaniyan M.D. Saint - Gobain India delivering Sahaj Memorial Lecture on "Glass & Architecture: Sustainability & Well Being."

Elaborate technical programme was the highlight of this conference. Three parallel symposia on Late Dr. V.N. Vaidya Symposium on Energy Materials, Ceramics and Glasses for Electrical and Electronics Applications and Specialty Glasses and Bioceramics were conducted on the second day of conference. There were many session key note lectures and invited talks from international speakers like Takeo Yamaguchi (Tokyo Institute of Technology- Japan), G.M. Anil Kumar (Noritake Inc.-Japan), Dr. Wong Chi Man (Institute of Charles Gerhardt, Montpellier, France) and many talks were given by eminent faculty members of esteemed institutions like IIT's, NIT's and scientists from various R & D labs like ARDE, ARCI, BARC, CGCRI, C-MET's, CSIR, DMRL, IGCAR, NCL, NIIST, VSSC etc. Many researchers participated for poster and oral paper competitions held at the conference. About 101 posters were exhibited at the poster presentation competitions and 30 contributory oral presentations were delivered.

Another highlight was a special "Industrial Brainstorming Session" convened by Mr. A.K. Bhise (Chairman of Industrial Advisory Committee, EH-TACAG'17) in which students were also given a chance to interact with many prominent industry representatives and researchers across various R&D institutes and labs. The prominent speakers who graced the occasion were Dr. Swapankumar Ghosh (CGCRI., Kolkata), Y. S. Rao (ARCI, Hyderabad), Mr. Animesh Bose (Almatis Alumina Pvt. Ltd., Kolkata) and Dr. K.G.K. Warrior. Many delegates from organizations like TA Instruments, Imerys Ceramics, Indian Ceramics, NTB Hightech Ceramics and others were also present. The outcome of the session resulted as industrial funding for S. Stalin, a student of Anna University, Chennai, who got full sponsorship of his project. Many industries encouraged students' participation in the industrial R&D projects. Second day was concluded with banquet dinner along with felicitations of all sponsors, advertisers and exhibitors.

The highlights of the third day were, parallel theme symposia on "Structural Ceramics and Processing of Ceramics", "Advanced Ceramics for Space Applications", "Advanced Ceramics for Defence Applications" and "Industrial Ceramics" in the morning session on the third day. The international speakers who delivered their talks on the third day were Prof. Sanjay Sampath (Stony Brook University, NY, USA), Dr. Gurpreet Singh (Kansas State University, KS, USA), Prof. P. Vaidhyanathan (Loughborough University, UK) and Dr. Kolan Madhav Reddy (Shanghai Jiao Tong University, China). Along with these sessions, a special session on techno-commercial talks by the industries and the main sponsors of the conference was held. "C-MET Mini Symposium" was another highlight of the third day where the directors of all the three C-MET laboratories namely Hyderabad, Thrissur and Pune presented the overview of various research activities carried out in these laboratories. Budding researchers and students got immensely benefitted by this symposium. The conference concluded with the valedictory function. The awards for

poster presentations and student competition were declared and distributed during the function at the hands of Dr. Swapankumar Ghosh, the guest of honor (Sr. Principal Scientist & Head, Project Management Division, Central Glass & Ceramic Research Institute, CSIR, Kolkata), Prof. N.B. Dhokey (HOD, Met. & Matl. Sc. Dept.) and Dr. S.P. Butee (Convener, EH-TACAG'17). Mr. Kaustubh Kambale (Secretary, EH-TACAG'17) proposed the vote of thanks.



Valedictory Function: From L to R, Dr. S.P. Butee, Dr. Swapankumar Ghosh (Sr. Principal Scientist, CG-CRI, CSIR, Kolkata), Dr. N.B. Dhokey, Prof. Kaustubh Kambale (Secretary, EH-TACAG'17), Mrs. Vaishali Poddar and 1st Prize in Poster presentation in Electroceramics Category winner Dr. Dhanya Johnson.



Team of Student Volunteers along with the faculty members of Met. & Matl Sc. Dept., COEP involved in organization of "EH-TACAG'17".

Summary of Technical sessions

Sr. No.	Organization	Keynote/ Invited talks	Oral	Poster	Total
1	Foreign University	11	00	03	14
2	IIT's	13	02	26	41
3	NIT's	0	01	14	15
4	State Universities	08	05	26	39
5	R&D labs	16	19	29	64
6	Industry	08	03	03	14
	Total	56	30	101	187

The conference witnessed a total of 362 Registrations. The details of registrations according to particular domain are enlisted below:

Sr. No.	Category	Attended
1	Awardee, Memorial, Plenary and Keynote	17
2	Invited talks	39
3	Oral and Student Session	30
4	Poster	101
5	Sponsor Attended	77
6	Participant	15
7	On Spot	51
8	Organizing Committee	32
	Total	362

The winners of poster presentation competition and student session are as follows:

Winners of Poster Presentation					
Sr. no	Name	Institution	Position	Category	Title
1	<u>P Chintaih</u> , M.K. Kujur, P.K.Sengupta, N. Mondal B.B. Agrawal	R&D Centre for Iron & Steel, SAIL, Ranchi – 834002, Jharkhand, India	1 st	Industrial Ceramics	Enhancing performance of Reheating Furnaces by Increasing Life of Skid Pipe insulation of Hot Strip Mill at BSL, Bokaro
2	<u>Asha Anil</u> , S. N. Misra	CSIR-Central Glass & Ceramic Research Institute, Naroda Centre,	2 nd	Industrial ceramics	Viscosity of Ferruginous Clays from Gujarat Region – Effect of Minerals

	N. M. Misra				Present Therein.
3	<u>Ridyumna</u> , Nagaraja Upadhya, P Kishore Gingupalli	Manipal College of Dental Sciences, Manipal	1 st	Bio-Ceramics	The influence of zirconium oxide and titanium oxide particles as reinforcement on the performance of restorative glass ionomer cement
4	<u>Shirin Akhter Jahan</u> , Mandira Saha, Sabrina Mostofa, Dr. Shirin Akter Jahan, Nahid Sharmin, Dr. Samina Ahmed	Institute of Glass and Ceramic Research and Testing (IGCRT), Bangladesh Council of Scientific and Industrial Research (BCSIR)	2 nd	Bio-Ceramics	Removal of Chromium from Water using eggshell derived Copper Doped Hydroxyapatite
5	<u>Luv Gurnani</u> , Mahesh Kumar Singh ¹ , Ranjan Kathuria ¹ , Parag Bhargava, Amartya Mukhopadhyay	IIT Bombay	1 st	Structural ceramics	Development of bulk polycrystalline MgO - based age - hardened / toughened ceramic alloys'
6	<u>T Baskaran</u> , Shashi Bhushan Aryaa	NITK, Surathkal	2 nd	Structural ceramics	Evaluation of microstructural changes and thermally grown oxide growth of oxidized Sm ₂ SrAl ₂ O ₇ ceramic thermal barrier coatings for gas turbine applications
7	<u>Mita Biswas</u> , Siddhartha Bandopadhyay	CSIR- CGCRI, Kolkata	3 rd	Structural ceramics	Carbonitridation of Alumina in presence of Silica

8	<u>Shijina K</u> , Balagopal N. Nair, Sreekumar Kurungot, A. Peer Mohamed, Gopinathan M. Anilkumar, U. S. Hareesh, G. S. Sailaja	CSIR-NIIST, Thiruvananthapuram	1 st	Energy Ceramics	Chitosan Intercalated Metal Organic Gel as a Green Precursor of Fe-N-Doped Mesoporous Graphitic Carbon for Oxygen Reduction Reaction
9	<u>Mainul Akhter</u> , S. B. Majumder	IIT Kharagpur	2 nd	Energy Ceramics	An experimental analysis of electrode matching utilizing $\text{LiNi}_{0.5}\text{Mn}_{1.5}\text{O}_4$ // AC hybrid electro- chemical capacitor
10	<u>Dhanya Johnson</u> , K. Anju, R. Ratheesh	C-MET, Thrissur, Kerala	1 st	Electroceramics	$\text{NaMg}_3\text{In}(\text{MoO}_4)_5$ ceramic for Ultra low temperature Co- firable (ULTCC) applications
11	<u>Ghanshyam Shirke</u> , Govind G. Umarji, Arjun R. Tarale, Vikas L. Mathe, Uttam P. Mulik, Sunit B. Rane	CMET- Pune	2 nd	Electroceramics	Formulation and effects of firing temperature on Al_2O_3 -Ferric oxide Based Thick Film Glass Composite for Steel Substrate
12	<u>Akash Mahajan</u> , K.R. Kambale, S. P. Butee, T. Karthik, A.R. Kulkarni	College of Engineering, Pune	3 rd	Electroceramics	Synthesis, Fabrication and Electrical Characterisation of $\text{La}_2\text{Ti}_2\text{O}_7$ ceramics
13.	<u>Ramesh Ade</u> , T. Karthik, Ajit R. Kulkarni, N. Venkataramani	IIT, Bombay	3 rd	Electroceramics	Room Temperature Magneto-electric response in 2-2 bilayer

					0.50Pb(Ni _{1/3} Nb _{2/3})O ₃ - 0.35PbTiO ₃ - 0.15PbZrO ₃ /CoFe ₂ O ₄ thin film
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Winners of Student Session Presentation				
Sr. No	Name	Institute	Paper Title	Position
1	<u>S. Naskar</u> , S. Mamatha, P. Biswas, A.K. Khanra1, Roy Johnson	NIT, Warangal	Studies on Paste Rheology and 3D Printing of Porcelain Parts	1 st
2	<u>Balreen Saini</u> , Maithili Bhakare, Sayali Deshpande, T. Karthik, Ramesh Ade, Ajit R. Kulkarni	IIT Bombay VNIT, Nagpur	Enhanced piezoelectric properties through composition modulation in Na _{0.4} K _{0.1} Bi _{0.5} TiO ₃ ceramics for stack actuator applications	2 nd
3	<u>Amruta Vairagade</u> , Channabasavraj, S.P.Butee, Kaustubh Kamble	COEP, Pune	Synthesis and Electrical Characterization of Sodium Beta Alumina Ceramics	3 rd

Photos and Videos of conference are provided in the link below:

- **14 December'17 Photos:**
<https://drive.google.com/file/d/1cEUPmwdOQe83o4r7dXs7kOpvzOoHwjaw/view?usp=sharing>
- **14 December'17 video:**
<https://drive.google.com/file/d/1mo3l5gX9vKmJDrEk9x2ff0MRaUXwezI0/view?usp=sharing>
- **15 December'17 photos:**
<https://drive.google.com/file/d/158UotismwgV9rc3XwvrynFNPkUx4D-IX/view?usp=sharing>
- **16 December'17 photos:**
<https://drive.google.com/file/d/1uGjf8lVS8jBvyFpZqNheGP01K5BDn6tB/view?usp=sharing>