

Report of
Two Day National Conference, NCMA – 2020
“Materials and their Applications: A Broad Perspective”
(9th – 10th January 2020)

Materials represent a very promising role to develop novel economic and environmentally friendly industrial process. The field of Materials Science is rapidly growing and several new discoveries calls of renewed mention of involved researchers. With this context, two-day national conference was organized by Department of Physics, VPM's B. N. Bandodkar College of Science in Collaboration with The Institute of Science, Mumbai on “Materials and Their Applications: A broad Perspective” which was held on 9th and 10th January 2020 at Thorle Bajirao Peshwe Sabhagruha, Thane. The aim of the conference was to stimulate the Scientific discussion between the researchers, promote new collaborations and provide a friendly platform to share scientific knowledge.

Prior to conference two preparatory workshops were conducted in VPM's B. N. Bandodkar College of Science, Thane.

The **First preparatory workshop** was held on 19th July 2019 and the topic highlighted was Biomaterials and its Applications. The workshop was inaugurated by Principal Dr. Mrs. M. K. Pejaver madam. This workshop was dedicated to her as she retired at the end of July 2019. The first speaker for the workshop was Professor P. M. Dongre, Head of University Department of Biophysics, Mumbai University. His talk was focused on the interactions of silver and gold nanostructure with model properties as in recent times the designing of safe nanostructure and living systems has significant impact on health. The second speaker was Dr. K. R. Jagdeo, Associated professor, Department of Physics, K.V. Pendharkar College, Dombivli. His talk was focused on Mettalic Biomaterials: Applications, Trends and current challenges. Asst. Professor B. K. Mandlekar concluded the workshop with Vote of thanks.

The **Second preparatory workshop** was held on 29th November 2019 and the topic highted was “Smart Materials”. The workshop was inaugurated by I/C Principal Prof S. Venkatraman, and invited guest speakers by lighting the lamp. The first speaker Dr. Madhavi Thakurdesai is a Professor and head, Department of Physics, In-charge- Thin film Research Laboratory, Birla College of Arts, Science and Commerce, Kalyan. In her talk Madhavi Madam highlighted the definition of Smart materials and the technological advancement that can be achieved through these materials. She emphasized that the next age of evolution of civilization is the smart materials age. The second speaker was Dr. Mahendra Khandpekar, Associate Professor, Department of Physics, Birla College of Arts, Science and Commerce, Kalyan. He talked about interdisciplinary nature of Materials science as a field that interconnects many sciences and also includes economics. He emphasized the applications of Smart materials. He spoke about the use of nano-materials in developing smart materials technology. Asst. Prof. B. K. Mandlekar concluded the workshop by proposing the vote of thanks.

WELCOMING AND OPENING CEREMONY of NCMA 2020

Day 1: 9th January, 2020

The first day of conference, 9th January 2020, started with offering garland to statue of founder of VPM, Late Dr. V. N. Bedekar. Welcoming and Opening Ceremony took place at Thorale Bajirao Peshwe Sabhagruha of VPM's B. N. Bandodkar College of Science, Thane.

The conference was inaugurated at the auspicious hands of Padma Vibhushan & India's senior nuclear scientist Dr. Anil Kakodkar. The chairman of Vidya Prasarak Mandal Dr. Vijay Bedekar, presided the function. In his inaugural speech Dr. Anil Kakodkar appreciated the presence of young researchers, particularly students. He advised to focus on the development of indigenous technologies for the sustainable development of nation.

Prof. Pushan Ayyub, senior scientist, TIFR Mumbai delivered keynote address of this conference. He focused on various myth and truths of nanoscience and nanotechnology. He told that nanoscience is a natural phenomenon which already in existence from thousands of years, we are just mimicking nature's nanoscience for betterment of human being. He also discussed basic paradigms of nanoscience.

The organizing secretary of the NCMA-2020, Asst. Prof. B. K. Mandlekar expressed deep gratitude on behalf of local Organizing Committee to the administration of hosting college. Special thanks were extended to the staff of the VPM's B. N. Bandodkar College of Science, Thane and Institute of Science, Mumbai. which worked all together and extremely hard to prepare in making this event a great success. Tender thanks were expressed to students the members of VPM's B. N. Bandodkar College of Science, Thane, who did impressive and dedicated work. Finally, sponsor Mr. K. S. Mali, Sharp Electronics was handed with honour plaques.

All technical sessions were fully informative, enthusiastic and inspirational.

In the **first technical session** Prof. C.S. Gopinath (NCL Pune) presented the idea that creativity is connecting things. He also explained the basic concept of solar energy harvesting and its applications. Dr. P. M. Shirage from IIT Indore presented the talk on "Metal Oxides Nanomaterials for Multifunctional Applications. He gave brief idea about superconductivity and its application in maglev trains. Prof. S. K. Omanwar from SGBAU Amravati, delivered his talk on the field of luminescence. All the speakers focused their talk on various materials and their applications. They covered batteries, supercapacitive materials, and luminescent materials. All speakers guided students regarding opportunities and different avenues available in research for young generations.

Then in **oral presentations** all young researchers presented their work. All the presentations were excellent and up to the mark.

In the **second technical session** Prof. N. Venkatramani, IIT Mumbai delivered talk on magnetic and magnetoelectric materials. He cleared few basic ideas on magnetism. He threw light on M-E coupling. The day was concluded by the talk delivered by Dr. Alok Verma, Scientist, SAMEER, IIT Mumbai. He demonstrated few devices in his talk and also explained the importance of optical wave guide.

Day 2: 10th January, 2020

On 10th Jan. 2020, the day started with series of excellent talks by Prof. Deepa Khushalani and Dr. Prabhu, both from TIFR Mumbai. Dr. Rajeev Joshi from CUK Gulberga and Dr. Suresh from IIT Mumbai delivered their talks in the second technical session of the day. Dr. Deepa Khushalani delivered the talk on Formation of Functional Metal Oxides and their use in Energy Storage Devices. She covered the energy scenario and hurdles in hydrogen production. She also insisted on the idea of using hydrogen as fuel instead of gasoline. She focused on the key parameters in development of battery, functions of battery and hurdles in its development. Dr. S. S. Prabhu explained the TeraHertz spectroscopy and its applications.

Dr. Rajeev Joshi explained the concept of Spintronic. His talk was very enthusiastic and inspirational for young generation. Dr. K. G. Suresh focused on magnetic materials, MCE, ME, etc.

Finally, some participants presented their work through posters. Almost **30 posters were presented** by participants.

All the speakers were highly internationally reputed personalities in the field of material science. I hope that through all these technical sessions, oral and poster presentations participants are highly benefited.

Valedictory and prize distribution ceremony function was the last session of the conference. It was graced by Chief guest Prof. V. K. Jain Sir (Director-DAE, Center for Excellence in Basic Sciences, an aided institution of Department of atomic Energy), Guest of honor, Dr. Mrs. M. K. Pejaver madam (Ex-Principal, VPM's B. N. Bandodkar College of Science, Director VPM's Advance study center), Principal S. Venkatraman Sir(Convener), Prof Ajay Chaudhari Sir(Convener), HOD of physics S. G. Bapat Sir (Co-Convener) and Dr S. B. Kulkarni Sir(Co-Convener).

Dr. S. B. Kulkarni Sir read the report of Two-day national conference. The jury members of the Poster and Oral presentation had been felicitated. One of the juries, Prof. Rajiv Joshi Sir commented on the presentations by the participants. Two participants, Mr. Nilesh Ingale and Dr. Nigvendra Sharma expressed their experiences during the conference. Dr. M. N. Nyayate Sir had been felicitated by the College for being appointed as an Emeritus Professor in UM-DAE, center for excellence in Basic sciences, Mumbai.

Prof. V. K. Jain sir made the audience aware about the social responsibility of everyone to be honest in education and research. Dr. M. K. Pejaver madam conveyed the

message that the research should get inculcated in student at early age as research is the part and parcel of every successful life of.

Participants selected for the Best Oral presentation and the winners of First and Second prize in Poster presentation were felicitated. Dr. P. S. More proposed the vote of thanks for the conference. The Valedictory function as well as the two-day national conference was concluded with the recitation of Pasaydan by Dr. Ashwini Tilak.



Chief Guest
Padma Vibhushan Dr. Anil Kakodkar



Key note Address by Prof. Pushan Ayyub (TIFR, Mumbai)



Prof. C. S. Gopinath (NCL Pune)



Prof. P. M. Shirage (IIT Indore)



Prof. S. K. Omanwar (SGBA Amravati)



Prof. N. Venkataramani (IIT Mumbai)



Felicitation of Ex- Teachers



Dr. Alok Verma (SAMEER Mumbai)



Prof. Deepa Khushalani (TIFR, Mumbai)



Prof. Rajeev Joshi (Central University of Karnataka)



Prof. S. S. Prabhu (TIFR, Mumbai)



Prof. K. G. Suresh (IIT Mumbai)



Dr. V. V. Bedekar (Chairman: Vidya Prasarak Mandal)



Chief Guest: Valedictory
Prof.V. K. Jain (Director:UM-DAE, CBS)



Guest of Honour: Valedictory
Dr. (Mrs.)M. K. Pejavar (Director: VPM's



Principal S. Venkatraman (Convener NCMA
2020)



Prof. Ajay Chaudhari (Convener NCMA 2020)



Dr. D. R. Ambavadekar
Chairman: Technical Session 1



Dr. S. D. Rathod
Chairman: Technical Session 2



Dr. M. Saha
Chairman: Technical Session 3



Emeritus Prof. R. Nagrajan (UM DAE,CBS)
Chairman: Technical Session 4



Releasing of Proceeding



Garlanding Statue of VPM's Founder



Lamp Lighting



Oral Presentations



Poster Presentations



Prize Distribution
