

In Diamond Jubilee year, it is our great pleasure to announce the Self Sponsored Online Short Term Course (STTP) on “Challenges and Opportunities in Designing Nanoarchitectonics of Nanoporous Carbon Materials for Industrial Applications” (NANCM2020) by Department of Materials and Metallurgical Engineering, Maulana Azad National Institute of Technology, Bhopal, during 16-20th September, 2020.

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About the institute

Maulana Azad National Institute of Technology (M.A.N.I.T), Bhopal is one of the pioneering engineering institutes of the country which has contributed many outstanding engineers. It is named after the great scholar, educationist and the first education minister of Government of India, Maulana Abul Kalam Azad. It was established in the year 1960. Currently, the institute is conducting 09 UG, 30 PG programs and Ph.D. programmes in all the disciplines of engineering and applied sciences and also conducting M.B.A programme with the help of about 200 competent faculty members. Special attention is given to interdisciplinary application oriented research with an aim of bridging the gap between academicians and industry professionals. Presently the institute is celebrating its Diamond Jubilee Year.

**SELF SPONSORED ONLINE SHORT TERM TRAINING
PROGRAM
ON
CHALLENGES AND OPPORTUNITIES IN DESIGNING
NANOARCHITECTONICS OF NANOPOROUS CARBON
MATERIALS FOR INDUSTRIAL APPLICATIONS
(16-20th September, 2020)**

Patron

Dr. N.S. Raghuwanshi
Director, MANIT Bhopal

Head of the Department

Dr. N.P. Patidar, Professor

Coordinators

Dr. C. Sasikumar, Dept. of MME

Dr. S. Suresh, Dept. of Chemical Engg.

Dr. Amit Dubey, Dept. of Chemistry



Organized by

**Department of Materials and Metallurgical
Engineering**

**Maulana Azad National Institute of Technology
Bhopal – 462 003**

Website: www.manit.ac.in

Department of Materials and Metallurgical Engineering:

The Department of Materials and Metallurgical Engineering (MME) was established in the year 2007 and is dedicated to the advancement of education and research in materials science and metallurgical engineering. The department is having a B.Tech programme on Materials & Metallurgical Engineering and one M.Tech Programme on Materials Science and Technology. The research interests of the Department encompass Advanced Materials including nano-materials, thin films, ceramics, polymers, Structure-property relationship in metallic and non-metallic materials and advanced composites, in addition to the core areas like Process Metallurgy, Extractive Metallurgy, Physical Metallurgy and Mechanical behaviour of materials. The Department through continuing education programmes and consultancy.

ABOUT STTP

Fullerenes, carbon nanotubes, graphene, and carbon nanohorns are the well-known nanocarbon materials that have been explored in energy storage, energy conversion, sensing, separation, purification, and also in biomedical technology. These materials show unique physicochemical and optoelectronic properties and, thus, are used in the functional system design. Nanoporous carbon materials are mainly carbonaceous materials and can be fabricated by the pyrolysis of different synthetic carbon sources and metal organic frameworks, templating self-assembled soft and hard nanomaterials, and natural bio-masses or agricultural wastes containing cellulose, hemicellulose, and lignin.

It has been found that depending on the synthetic conditions, preparation method, and type of precursors or carbon sources used, porous carbon materials with different pore sizes (micro–macro via mesopores) can be fabricated. Contrary to the conventional agricultural wastes including coconut shell, corncob, bamboo, pitch stone, etc. researchers have been exploring novel precursors such as biowaste chicken eggshell containing high amount of calcium carbonate for the fabrication of new nano-porous materials.

In this STTP, we will focus on recent trends and the advancements of the synthetic methods for the fabrications of hierarchical porous carbons materials with one- to three-dimensional network structure for industrial applications. We will also highlight the promising scope of accessing nano-porous graphitic carbon materials obtained from the direct conversion, metal organic frameworks, hard- and soft-templating routes and also the direct carbonization and/or activation of biomass or agricultural wastes as non-templating routes.

In view of above Department of Materials and Metallurgical Engineering is organizing a STTP on “Challenges and Opportunities in Designing Nanoarchitectonics of Nanoporous Carbon Materials for Industrial Applications”. The faculty for the STTP will be experienced professional from I.I.T’s, N.I.T’s and Industrial Experts in relevant field.

CONTENTS

- The major areas of the STTP are:
- Nanoporous Materials
- Carbon based Nanomaterials
- Nanomaterials for Energy & Environment
- Nanotechnology & Environmental benefits
- Micro and Nano Manufacturing
- Characterization of Nanoporous carbon (SEM/TEM/XRD/AFM/TGA etc)

- Renewable energy and sustainable Synthesis
- Smart Materials
- Nano-porous materials for Energy Application
- Nano-porous materials for Biomedical Application
- Bio-inspired functional nanocomposites

REGISTRATION

Participants	Amount
Diploma/UG/PG/PhD Students	Rs. 500/-
Faculty of Academic Institutes and R&D organization	Rs. 500/-
From Industry	Rs. 500/-

Registration forms are available on Institute website www.manit.ac.in.

The completed registration form may be sent along with Demand Draft payable in favour of “Director, MANIT Bhopal”, payable at S.B.I, MANIT Bhopal Branch. The last date for application is 15th September-2020.

Details of Money-Transfer by net-banking: Account Name: Director MANIT Bhopal
Bank Name: State Bank of India
Bank Address: MANIT (MACT) Bhopal
Account No. 10020150107
IFSC Code: SBIN0001608

In net banking money transfer please clearly mention narration in remark column as “Registration fee for NANCM2020” otherwise it will be difficult to trace the money transfer and receipt may not be issued.

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CHALLENGES AND OPPORTUNITIES IN DESIGNING NANOARCHITECTONICS OF NANOPOROUS CARBON MATERIALS FOR INDUSTRIAL APPLICATIONS (16-20th September 2020)

Registration Form (online/offline/spot)

Name of the Candidate (Capital letters):

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Address:

.....

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Fax:

Phone: (R)..... (O)

(with STD code)

E-mail:

Qualification:

Present Position:

.....

Relevant Experience:

.....

PAYMENT DETAILS:

Bank Name:

Amount: DD no:

Date:

Date:

Signature of Applicant

SELF SPONSORED ONLINE STTP ON

“Challenges and Opportunities in Designing Nanoarchitectonics of Nanoporous Carbon Materials for Industrial Applications”

LIST OF PIONEERS WITH THEIR EXPERT TALK DURING STTP

- ❑ **Prof. V.C. Srivastava, Professor, IIT Roorkee:** Novel synthesis of graphene-oxide and its composites
- ❑ **Dr. M. Chidambaram, General Manager - R & D (Catalyst & Chemicals), Hindustan Platinum, Mumbai:** Carbon based Precious Metal Catalysis: Applied Case Studies on Pharmaceutical and Fine Chemical Industrial Processes
- ❑ **Dr. Sharad Lande, Senior Manager, R & D, Reliance Industries, Mumbai:** Recent advancement on Catalytic Materials in Petroleum industries
- ❑ **Prof. Paritosh Mohanty, Professor, IIT Roorkee:** Nanoporous Materials: Hyper or Hope?
- ❑ **Dr. S. Das, Adjunct Professor, MANIT & Former Director, AMPRI Bhopal:** Carbon template on Metal-Metal Nanocomposite



LIST OF PIONEERS WITH THEIR EXPERT TALK DURING STTP

- ❑ **Dr. N. Satish, AMPRI, Bhopal :** Additive Manufacturing of graphene nanocomposites
- ❑ **Dr. Pankaj Kumar Patro, Scientist, BARC Mumbai:** Solid Oxide Fuel Cell: A Journey from Powder to Power
- ❑ **Prof. Amit Dubey, MANIT Bhopal:** Synthesis and characterization of different mesoporous carbons for hydrophobic applications
- ❑ **Dr. Raj Kumar Garg, Technology Application, New Delhi:** Recent advancement in Nanoporous materials based plasma technology
- ❑ **Dr. S. Suresh, MANIT Bhopal:** Mesoporous Materials for Sensing of Toxic gases
- ❑ **Dr. C. Sasikumar, MANIT Bhopal:** Carbon Materials: Synthesis, Characterization
- ❑ **Dr. Dharmendar Kumar Sharma, MANIT Bhopal:** Nanomaterials for Energy & Environment

Microporous
Less than 2 nm

Mesoporous
2-50 nm

Macroporous
Greater than 50 nm