



One Day Workshop on Materials and Technologies for Biomedical Implants

February 24, 2022



International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI) is an autonomous research and development centre of the Department of Science and Technology, Government of India for the promotion of research as well as technology development in the area of advanced materials, including nanomaterials, energy technologies, engineered coatings, sol-based coatings, laser processing of materials, ceramic processing, and powder metallurgy. ARCI has established an ensemble of the latest technologies in the above-mentioned areas and has subsequently transferred them to private industries for commercialization. Apart from this, ARCI is actively involved in the development of several advanced manufacturing technologies for a range of materials as well as components. More recently, ARCI has embarked on the development of materials and technologies like the production of powders, fabrication of implants, and surface modification for biomedical applications. In this regard, ARCI has been working closely with academia, research institutes, and industry.

As the nation commemorates **Azadi Ka Amrit Mahotsav**, marking the 75 glorious years of India's Independence, ARCI is organizing a series of events during the year. One of the events being organized by ARCI on **February 24, 2022** is **One-day Workshop on Materials and Technologies for Biomedical Implants** that aims to bring together leading academicians, scientists, researchers, and industry personnel to exchange and share their experiences and research on all aspects of Biomedical Implants and Devices.

Medical implants are devices transplanted either temporarily or permanently inside the body by surgery. The implants are generally used to replace any damaged organs of the body or used for diagnosis or prevention of any function. An increase in incidences of chronic diseases, changes in lifestyle and adoption of a sedentary lifestyle, technological advancements, rise in aging population, etc., drive the medical implants market in India. During the last decade, translational research on permanent as well as biodegradable implants has shown the feasibility of several novel materials for use in the fields of cardiology and orthopedics.

The Indian medical implants market is segmented based on product and biomaterial. Based on product, it is more into orthopedic, cardiovascular, spinal, dental, and Cranio-maxillo-facial implants, etc. On the basis of biomaterials, it is classified into metallic biomaterials, ceramic biomaterials, polymers biomaterials, and natural biomaterials. The key players in the field are materials researchers, medical experts and industry.

**Register
for
FREE**

This Workshop provides a premier platform for researchers, practitioners, educators, industry, and students to focus on the most recent innovations, trends, and concerns as well as practical challenges encountered and solutions adopted in the fields of Biomedical Implants and Devices. Factors such as technological advancements, increase in awareness amongst patients, and untapped market opportunities in India will also be discussed.

The topics of the One-day Workshop include:

- Manufacturing technologies for implants and devices
- Surface engineering of medical implants
- Clinical aspects of Biomedical implants and devices
- Critical analysis of in-vivo testing of the implants
- Commercialization and Market opportunities for implant manufacturing



Development of materials and technologies for bio-medical implants at ARCI

The One-day Workshop on Materials and Technologies for Biomedical Implants is being held on February 24, 2022 from 9.30 a.m. to 5.30 p.m., on virtual platform. Join the meeting via the Cisco Webex Link given below:

Meeting Link: <https://arci.webex.com/arci/j.php?MTID=m780320179ef1d618053c0bbcf6eca0c>
OR

Join via Cisco Webex Meetings (App/Web) using
Meeting Number : 2519 267 7628
Password: 1234

Participants are encouraged to fill-in the attached Registration form and forward it to events@arci.res.in latest by 18/02/2022. The detailed programme including the list of speakers will be displayed on ARCI website (www.arci.res.in) soon.

Organizing Committee

- Chair:** Dr. Tata Narasinga Rao, Director (Additional Charge), ARCI
- Co-Chairs:** Dr. R. Vijay, Scientist 'G' & Head, Centre for Nanomaterials (CNM)
Dr. Sanjay Bharadwaj, Scientist 'F' & Head, Centre for Technology Acquisition and Transfer (CTAT)
- Convener:** Dr. B. V. Sarada, Scientist 'F', Centre for Nanomaterials (CNM) & Coordinator-Biomedical Working Group, ARCI
- Co-Conveners:** Dr. Kaliyan Hembram, Scientist 'E', Centre for Nanomaterials (CNM)
Dr. Dibyendu Chakraborty, Scientist 'E', Centre for Nanomaterials (CNM)
Dr. Krishna Valleti, Scientist 'E', Centre for Engineered Coatings (CEC)
Mr. Manish Tak, Scientist 'E', Centre for Laser Processing of Materials (CLPM)
Dr. S. Kavitha, Scientist, Centre for Automotive Energy Materials (CAEM), ARCI-Chennai

इंटरनेशनल एडवांस्ड रिसर्च सेंटर फॉर पाउडर मेटलर्जी एंड न्यू मटेरियल्स (एआरसीआई)
**INTERNATIONAL ADVANCED RESEARCH CENTRE FOR
POWDER METALLURGY AND NEW MATERIALS (ARCI)**

(An autonomous Research & Development Centre of Department of Science & Technology, Government of India)

बालापुर, हैदराबाद / Balapur, Hyderabad - 500 005



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Facilities and Expertise at ARCI

Biomedical Implants

Materials



Vacuum Induction Melting (VIM) unit for alloys making



Inert Gas Atomization (IGA) for manufacturing AM grade powders



Flame Spray Pyrolysis unit for manufacturing oxide nanopowders

- Biodegradable alloys
- Powders for Additive Manufacturing
- Metallic implants
- Surface modification of implants
- Functionally graded Materials

Manufacturing/Fabrication



EBM

Additive Manufacturing systems



SLM System



Follicular unit extraction (FUE)



Lattice structured implants



Dynamic Condylar Screw

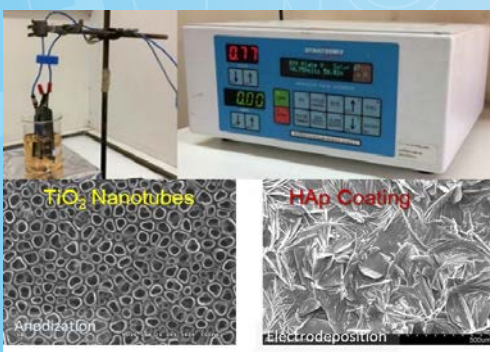


Ultrafast Laser Micromachining



Spark plasma sintering

Surface Modification



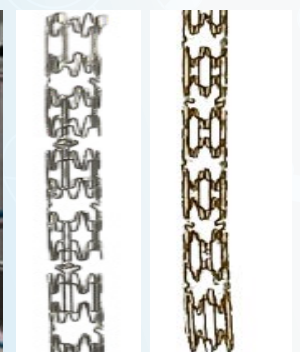
Anodization and HAP coatings on implants by Pulsed electrodeposition



Physical Vapor Deposition (PVD)



Plasma Spray



Uncoated stent PVD coated stent at ARCI

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**International Advanced Research Centre
for Powder Metallurgy & New Materials (ARCI)**
**One-Day Workshop on Materials and Technologies for
Biomedical Implants**

24th February, 2022

Timing: 9.30 AM to 5.30 PM

E-mail to: events@arci.res.in on or before 18/02/2022

Participant's Details

* Required Fields

Name*: _____

Affiliation*: (Organization/Company)

Type of Institute*:
(Research Institute/Academia/Industry)

☐ Research Institute

☐ Academia

☐ Industry

☐ Others

Designation*:

Contact Details*:
(Address and phone number)

Mobile

Email

Area of Interest*:

Place

Date

I would like to register for online participation in One-Day Workshop being held on February 24, 2022 virtually by ARCI, Hyderabad.
