

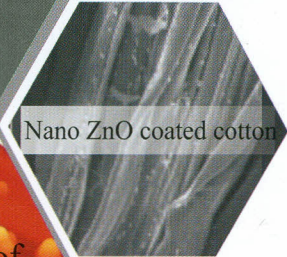


# TRAINING ON ADVANCES IN APPLICATIONS OF NANOTECHNOLOGY

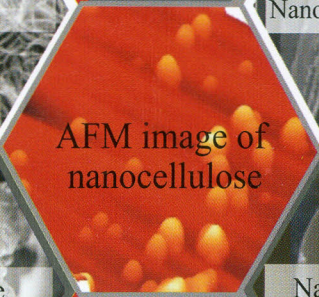
February 6-10, 2017



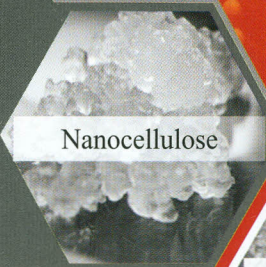
Nano filter



Nano ZnO coated cotton



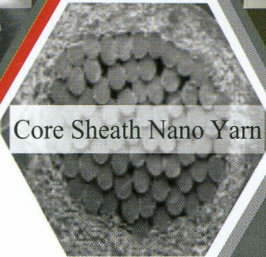
AFM image of  
nanocellulose



Nanocellulose



Nanocellulose Gel



Core Sheath Nano Yarn

*Organized by*

ICAR - Central Institute for Research on Cotton Technology (ICAR-CIRCOT)  
D.A.R.E., Ministry of Agriculture & Farmers Welfare, Govt. of India  
Adenwala Road, Matunga, Mumbai- 400019 (MH) INDIA

## Introduction

ICAR-CIRCOT, located at Matunga, Mumbai was established in the year 1924. ICAR-CIRCOT, a unit under the Division of Agricultural Engineering of Indian Council of Agricultural Research (Department of Agricultural Research and Education, Ministry of Agriculture and Farmers Welfare, Government of India) is engaged in research and development of new technologies for better utilization of cotton and its by-products with following Mandate:

- Basic and strategic research on processing cotton and its agro-residues, development of value added products and quality assessment.
- Skill development and business incubation services and function as a referral laboratory for cotton fibres.

## About the Training Programme

Nanotechnology deals with the manipulation of atoms, molecules, or molecular clusters into functional structures to create functional materials and devices of vastly different properties. The first use of the concept of 'nanotechnology' was in "There's Plenty of Room at the Bottom", a talk given by physicist Richard Feynman. Now nanotechnology does not remain as a theoretical science rather it is being applied in all fields and gained the status of applied science and it is a multidisciplinary subject. Agriculture and Food Production are no exception to it. This has realized the potential of nanotechnology in each stage starting from crop production to consumption. In India, Department of Science and Technology (DST) has initiated the Nano-Mission to foster the research activities in this field followed by various organizations. Indian Council of Agricultural Research (ICAR) in collaboration with state agricultural universities has initiated Consortium Research Project (CRP) on Nanotechnology to boost the research in the field of nanotechnology. ICAR-CIRCOT, a leader in the field of nanotechnology, has a decade of experience and expertise in nanofinishing of textiles and nanocomposites. In 2015, India's First Nanocellulose Pilot Plant was commissioned and dedicated to the nation. With this background, advanced trainings are being arranged to share the knowledge with various stakeholders. This training module on 'Advances in applications of Nanotechnology' is designed to impart basic and advanced knowledge of nanotechnology and its applications.

## Objectives

- To acquaint participants with the Recent Advances in Nanotechnology
- To impart hands-on training on synthesis & characterization of nanomaterials
- To demonstrate the application of nanomaterials in textiles, composites filtration, sensors and agriculture & allied sectors

## Course Contents

- Basics & Advances in Nanotechnology
- Synthesis of Nanomaterials (Methods: Physical, Chemical, Mechanical & Biological)
- Characterization of Nanomaterials
- Application of Nanomaterials in Agro- & Geo-Textiles
- Application of Nanomaterials in Composites
- Application of Nanomaterials in Agriculture
- Life cycle analysis of nanomaterials
- Nanotoxicology
- Business Incubation opportunities in Nanotechnology

## Facilities Available

- High pressure homogenizer, Ball Mill
- Nanoparticle size analyzer (DLS)
- Atomic force microscope, Electrospinning
- X-Ray diffraction (XRD), BET analyzer
- Scanning electron microscope (SEM)
- Fast protein liquid chromatograph
- Textile finishing & Characterization
- Composite making & Characterization



Atomic Force Microscopy

## Date and Venue

February 6-10, 2017 at ICAR- Central Institute for Research on Cotton Technology (CIRCOT), Adenwala Road, Matunga (East), Near Five Gardens, Mumbai 400019.

## Accommodation

Guest house accommodation at ICAR-CIRCOT is limited and shall be provided at standard rate on first-come-first-served basis for 10 participants on sharing basis.

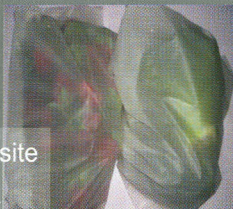
## Fees

The Programme fee is Rs. 25,000/- + 15% service tax per participant. This includes course fee, course material, breakfast and working lunch. The fee does not include travel, lodging, conveyance and other personal expenses. For students and personnel from NARS system, 50% concession in Programme fee is applicable.



Membrane reactor for Enzymatic Preparation of Nanocellulose

Starch Nanocellulose composite films for packing strawberry



## How to Apply

The interested participants may send their applications in the prescribed format available on the website [www.circot.res.in](http://www.circot.res.in). The fee in the form of DD drawn / at par Cheque in favour of "Director, CIRCOT" payable at Mumbai, may be sent to the below mentioned address so as to reach us on or before 30<sup>th</sup> December, 2017. The Bank account details for NEFT transfer is available in the registration form.

## How to Reach CIRCOT

From Airport (Domestic)	: 10 km
From Airport (International)	: 12 km
Nearest Railway Station	: Dadar (1.7km)
Nearest Bus Stop	: Kopol Nivas, Dr. Ambedkar Rd, Matunga East, Near Five Gardens bus stop
Landmark	: Five Gardens

## Organizers

Programme Director	: Dr. P. G. Patil,, Director, ICAR-CIRCOT
Programme Coordinators	: Dr. N. Vigneshwaran, Sr. Scientist, CBPD : Er. A. K. Bharimalla, Sr. Scientist, Head I/c, TTD Dr. Virendra Prasad, Sr. Scientist, CBPD Dr. C. Sundaramoorthy, Sr. Scientist, TTD Mr. A. Arputharaj, Scientist, CBPD

## Address for Correspondence

**Er. Ashok Kumar Bharimalla**  
Head I/C , TTD, ICAR-CIRCOT,  
Adenwala Road, Matunga,  
Mumbai-400019

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Fax	: 24130835 / 24157239



ICAR-CIRCOT, MUMBAI

TRAINING



हर कदम, हर उमर  
किसानों का हमसाफर  
भारतीय कृषि अनुसंधान परिषद

*Agrisearch with a human touch*



**Skill India**  
कौशल भारत - कुशल भारत



Jai KISAN  
Jai VIGYAN