

Day 1	13 th December 2018
08:30 AM – 09:30 AM	REGISTRATION
09:15AM – 09:20 AM	OPENING OF NANOFORAGRI - 2018
	Welcome – Dr Alok Adholeya, TERI

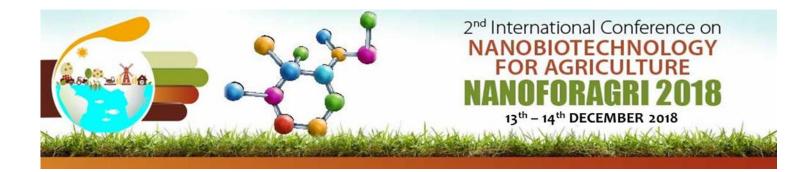
09:20 AM – 10:45 AM	Session I – Integrated Nutrient Management and Soil
	Conservation

Chairman – Dr Archana Sinha, Joint Director (Chemistry); Directorate Of Plant Protection, Quarantine & Storage,

Rapporteur – Dr Rita Choudhary, TDNBC

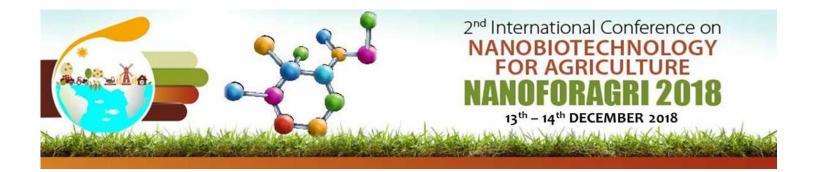
Nano agri-inputs such as nanofertilizers and nanocomposites are fast gaining popularity as alternatives to chemical fertilizers as they can provide required benefits in smaller doses and with greater efficiency. This session explores the current trends, challenges and opportunities for nano-interventions in soil conservation and nutrient management strategies which can improve existing agricultural practices.

09:20 AM – 09:35 AM	Soil nutrient management strategies – Challenges and
	Opportunities for Nanotechnology interventions
	Dr Alok Adholeya, TERI, New Delhi
09:35 AM – 09:50 AM	Nano- Inputs for Sustainable Agriculture
	Dr K S Subhramanian, TNAU, Coimbatore, India
09:50 AM – 10:05 AM	Nanoclays as food packaging materials



Dr Anil Kumar Anal, Asian Institute of Technology, Thailand
Delivery of Abscisic Acid to Plants Using Glutathione
Responsive Mesoporous Silica Nanoparticles
Dr James Rookes, Deakin University, Geelong, Australia
Biological Synthesis and characterization of nanoparticle
from <i>Trichoderma</i> sp. and its bioefficacy in tomato plants
Dr. Prabhakaran N, T. Stanes & Company Ltd, Coimbatore
Eco-friendly nanomaterial synthesis and fabrication:
development of next generation agri-inputs
Dr Braj Raj Singh, TDNBC, Gurugram
Integrated Nutrient Management and Soil Conservation
Moderator: Dr Archana Sinha
Panelists: Speakers from the session
Discussants: Dr P K Patanjali, Dr Vinod Saharan, Dr JC
Rajput, Prof N Chandrasekharan, Dr Satish Rai, Dr Rachna
Sahney

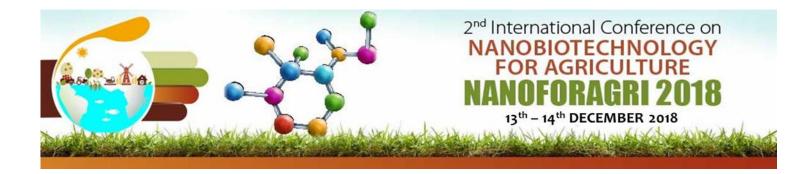
10:45 AM - 11:45 AM	INAUGURAL SESSION
10:45 AM - 10:48 AM	Arrival of Dignitaries, Felicitation and Lamp Lighting
10:48 AM - 10:52 AM	Welcome Address
	Dr Ajay Mathur, Director General, TERI
10:52 AM – 10:59 AM	Relevance of the Conference



	Prof Peter Hodgson, Vice President, Industry Engagement,
	Innovation & Commercialisation
11:00 AM - 11:05 AM	Special Address
	Dr Suchita Ninawe, Adviser, DBT
11:06 AM – 11:19 AM	Special Address
	Dr A Neerja*, Joint Secretary, Integrated Nutrient
	Management, Ministry of Agriculture
11:20 AM – 11:35 AM	Inaugural Address
	Shri Om Prakash Dhankar*, Minister of Agriculture, Govt. of
	Haryana
11:36 AM - 11:40 AM	Launching of Proceedings of NANOFORAGRI 2018 and
	Felicitation of Dignitaries
11:40 AM - 11:45 AM	Vote of Thanks
	Dr Alok Adholeya, Programme Director, Sustainable
	Agriculture, TERI; Director TERI Deakin Nanobiotechnology
	Centre (TDNBC), Conference President

11:45 AM – 12:15 PM	HIGH TEA
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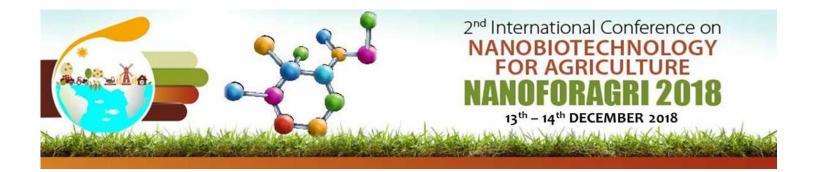
12:15 PM - 02:00 PM	Session II – Integrated pest management using
	nanomaterials
Chairperson: Dr P K Patanjali, IPFT, Gurugram	



Rapporteur : Dr. Alka Pandey, TDNBC

Traditional strategies like integrated pest management used in agriculture are insufficient, and application of routine chemical pesticides have adverse effects on soil microflora and human beings apart from declining soil fertility. Nanotechnology can provide green and efficient alternatives for the management of insect pests in agriculture through the formulations of novel pesticides and insecticides, bio-conjugated nanoparticles (encapsulation) for slow release of pesticides, nanoparticle-mediated DNA transfer in plants for the development of insect pest-resistant varieties which would be useful in precision farming.

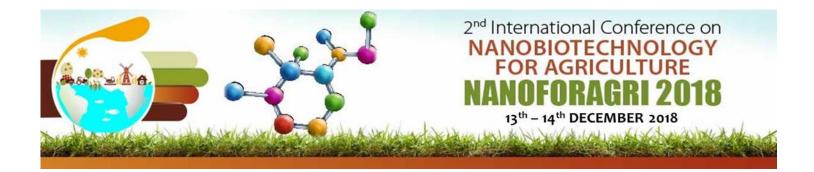
12:15 PM – 12:35 PM	Role of nano-biopesticide in crop protection;
	Dr Appa Rao Podile, University of Hyderabad, Hyderabad
12:35 PM – 12:50 PM	Nanoparticles as next generation carrier vehicles for the
	sustainable and efficient delivery of agrochemicals;
	Prof David Cahill, Deakin University, Geelong, Australia
12:50 PM - 01:05 PM	Plant diagnostics: opportunities and challenges;
	Dr Gopaljee Jha, NIPGR, New Delhi
01:05 PM - 01:20 PM	Nanopesticides: A possible solution for an integrated pest
	management;
	Dr N Chandrasekharan, VIT University, Chennai
01:20 PM - 01:35 PM	Influence of Nanopesticides on the biochemistry of
	phytopathogens;
	Dr Robin Gogoi, IARI, New Delhi
01:35 PM - 01:45 PM	Polymeric nanofungicids for management of fungal diseases
	in crops



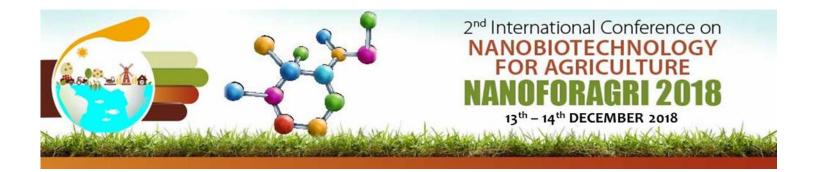
	Dr Pawan Kaur, TDNBC, Gurguram
01:45 PM - 02:10 PM	Integrated pest management using nanomaterials
Panel Discussion	Moderator: Dr. PK Patanjali, IPFT Gurugram
	Panelist:s Speakers from the Session
	Discussants: Dr Sapna Grewal, Dr PK Patanjali, Dr PK Agarwal,
	Dr Tinku Basu, Dr Satish Rai
02:10 PM - 03:00 PM	LUNCH
03:00 PM – 03:20 PM	Environmental fate of nano-enabled agrochemicals
Special Talk	Dr Melanie Kah, CSIRO Land/Water, Adelaide, Australia (via
	<u>Video/SKYPE)</u>

03:00 PM – 04:30 PM Session III : Nanoimaging for Diagnosis and Detection

A wide range of nanoscale imaging tools are being used in current research which includes sophisticated microscopic methods such as scanning probe microscopy, electron microscopy, high resolution optical microscopy as well as different types of spectroscopy. Advances in nanoscale materials such as carbon nanomaterials and nano formulations have led to advances in the techniques required to examine and manipulate them. This session will focus on how such advanced strategies allow greater understanding and applications of nanomaterials, making nanoscale imaging a crucial part of biotechnological interventions.



Chairperson: Prof R K Sharma, DU	
Rapporteur : Mr Chandrakant Tripathi, TDNBC	
03:00 PM – 03:20 PM	Smart probes for non-invasive imaging;
	Dr Anil K Mishra, DRDO, INMAS
03:20 PM – 03:35 PM	Microfluidic and analytical technology application towards
	agriculture, veterinary and biotechnology problems;
	Dr Xavier Conlan, Deakin University, Australia
03:35 PM – 03:50 PM	High Resolution Subcellular Imaging to Understand
	Biological Mechanisms;
	Dr. Sivaram V S Mylavarapu, RCB, Gurugram
03:50 PM – 04:05 PM	Tracing the ¹⁵ N stable isotope with metabolomics to study
	nitrogen metabolism;
	Dr Damien Callahan, Deakin University, Geelong, Australia
04:05 PM – 04:45PM	Nanoimaging for Diagnosis and Detection
Panel Discussion	Moderator: Prof RK Sharma, DU
	Panelist:s Speakers from the Session
	Discussants: Prof Renu Deswal, Prof SV Eswaran,
	Dr Sharmishtha Sinha

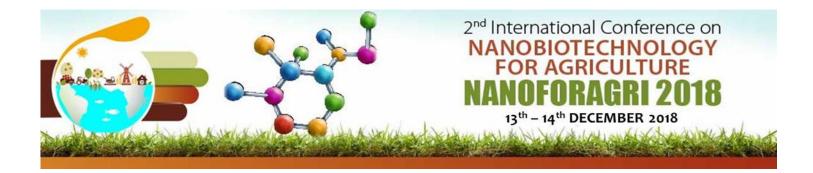


05:05 PM – 06:45 PM	NANOAGRI SCHOOL (in parallel at TD NBC, TERI Gram)
	Lab Exposure Workshop for students
	(Co-ordinator : Dr Nupur Bahadur, TDNBC)
05:10 PM – 06:45 PM	E-POSTER SESSION (TERI Retreat / TDNBC)

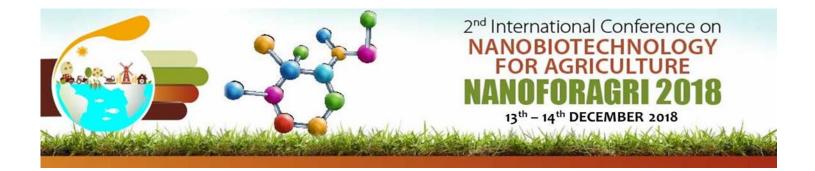
06:45 PM onwards	Networking and Banquet Dinner at Retreat Lawns (TERI Gram
<u> Dinner Notes –</u>	Translation of ideas and policies to support nanotechnology
<u>0700 PM – 0720</u>	interventions for agriculture –
<u>PM:</u>	Dr Dhananjay K Tiwary, DBT, GoI
07:30 PM onwards	Cultural Evening followed by Dinner

Day 2	14 th December 2018
09:00 AM - 10:45 AM	Session IV – Bionanocatalysis
Chairperson: Prof. S V Easwaran, DU	
Rapporteur: Dr. Sapna Johnson, TDNBC	
This session deals with the fascinating concept of nanocatalysis. Dominated by surfaces	

and interfaces, nanomaterials display surprising reactivity, physical, electronic, or mechanical properties. Biomimetic methods are being studied for reactivity, and the examination of the effects of the biointerfaces on the catalytic functionality have been initiated. Novel catalytic nanomaterials and conjugated materials are being prepared using biotemplates such as peptides and viral templates for a range of important,



energy intensive catalytic processes.	
09:05 AM – 09:20 AM	New Gold Nanostructures for Biosensor Applications;
	Dr Wenrong Yang, Deakin University, Geelong, Australia
09:20 AM - 09:35 AM	Nanoimmobilisation of enzymes aid sustainable production
	of high-value algal bioactives;
	Dr Munish Puri, Flinders University, Adelaide, Australia
09:35 AM - 09:50 AM	Bacterial Microcompartments as Paradigms for Hybrid
	Organic-Inorganic Catalysts;
	Dr Sharmishtha Sinha, INST, Mohali
09:50 AM - 10:05 AM	Catalytic amyloids and functional polymers as esterase
	mimick;
	Dr Asish Pal, INST, Mohali
10:05 AM - 10:20 AM	Nanostructured materials for point of care diagnosis;
	Dr Pratima Solanki, JNU, New Delhi, India
10:20 AM - 10:45 AM	Bionanocatalysis
Panel Discussion	Moderator: Prof S V Easwaran, DU
	Panelists: Speakers from the Session
	Discussants: Prof Amit Dinda, Dr. Anil Mishra, Prof RK Sharma,
	Dr Damien Callahan, Dr Anil Kumar Anal, Dr Xavier Conlan

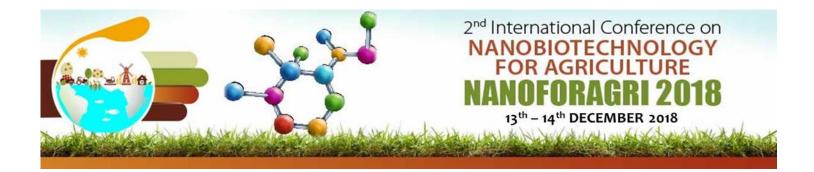


	Session V – Fate of Nanomaterials including
11:15 AM – 01:00 PM	transformation and toxicity, risk assessments

Chairperson: *Prof. Y K Gupta, President ISNM* Rapporteur: *Dr Pushplata Singh, TDNBC*

Unique properties of engineered nanomaterials are beneficial to a range of industries and hence have tremendous applications However, uncertainties in assessing their potential health and environmental risks could hinder their safe use. Assessment of the risk posed by engineered nanomaterials is based on both the hazard that they present and the level of exposure. As the diversity of nanomaterials makes it difficult to generalise their risks, this session will highlight some of these issues.

11:15 AM – 11:35 AM	Role of regulatory science in development of safe
	Nanotechnology based product for agriculture :
	Dr Amit K Dinda, AIIMS, New Delhi
11:35 AM – 11:50 PM	Understanding implications of nanoparticles percolation in
	soil :
	Dr Arun Kumar, IITD, New Delhi
11:50 PM - 12:05 PM	Trouble relaxing? Polyacrylic acid coated nanoparticles
	inhibit blood vessel relaxation in cane toad (Rhinella
	marina) iliac artery;



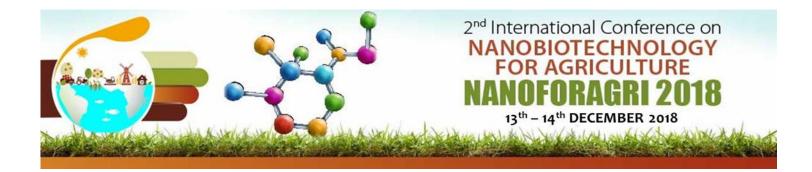
	Dr Aaron Schulz, Deakin University, Geelong, Australia
12:05 PM – 12:20 PM	Understanding The Fate And Transport Of Nanopesticides In
	The Riverine Environment;
	Dr Gopala Krishna Darbha, IISER Kolkata
12:20 PM - 01:00 PM	Fate of Nanomaterials including transformation and toxicity,
Panel Discussion	risk assessments
	Moderator: Prof Y K Gupta, President ISNM
	Panelists: Speakers from the session
	Discussants: Dr Asish Pal, Dr Pratima Solanki, Dr Madhusudan
	Bhat, Dr Wenrong Yang

01:00 PM – 01:45 PM Lunch

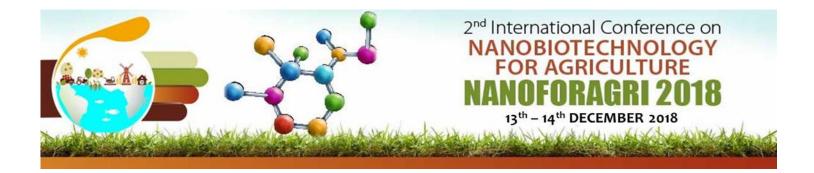
01:45 PM – 02:45 PM	Session VI – Nanotechnology Ideas from Young Minds
	(Youngster's Forum)

This session aims at bringing centre stage young researchers and their research projects. It will provide an interactive platform for discussion with established research professionals. This will help in growth of the Young Researcher's scientific temperament and develop an outlook towards solving global challenges in agriculture with emerging and promising technologies.

> Chairperson: Dr Luis Afonso, Deakin University, Australia Rapporteur: Dr. Doyeli Sanyal, TDNBC



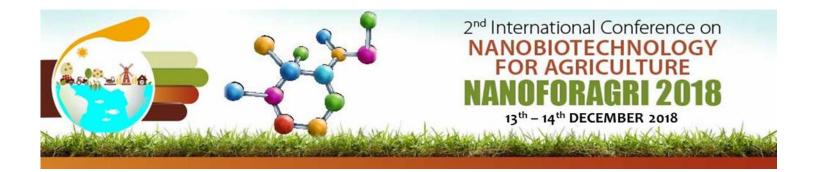
01:45 PM – 01:52 PM	Ms. Shraddha Shahane, IIT Delhi:
	Compiling information for understanding water treatment
	requirements during use of nanopesticides in agriculture sector
01:53 PM - 02:00 PM	Mr Ovais Manzoor, JMI, New Delhi :
	Live cell detection and measurement of vitamin b1 levels
	through a fret based nanosensor
02:01 PM - 02:08 PM	Mr Devendra Sillu, TIET, Patala :
	Immobilization of Glucose Isomerase over Magnetic Nanotubes
	with Improved Stability and Biocatalytic activity
02:09 PM - 02:16 PM	Mr Satya Prakash, DU, New Delhi :
	Analysis of Brassica juncea leaf protein corona formed on the
	surface of gold nanoparticles in vitro
02:17 PM – 02:24 PM	Ms Shalini Nagabooshanam, AINt, Noida :
	Bio-conjugated polyaniline decorated MWCNT nano-composite
	for sensitive detection of organophosphate pesticides in food
	chain
02:25 PM – 02:32 PM	Ms CC Sheeja, CU, Kerala :
	An evaluation of the biochemical effects of MoS2 nanoparticles
	on the Asian weaver ant, Oecophylla smaragdina
02:33 PM - 02:40 PM	Mr Pramod K. Gupta, JNU, New Delhi :
	Hybrid nanocomposites based electrochemical immunosensors
	for effective detection of food toxin



03:00 PM – 05:00 PM Session VII – Moving Forward for Commercialization of Nano Agri-Inputs : Stakeholder's Perspective

This brain-storming session focuses on the perspectives of policy makers, innovators and end-users. It will highlight challenges in commercialization and policy facilitation, the vision of regulators in seeking key national/global interventions, the views of industries relating to challenges and opportunities in commercialization and adopting new technology solutions. This will further help the research fraternity to facilitate mechanisms for farmers and solve challenges by them. Discussions would be aimed at achieving effective end-use applications of the technologies and innovations at the end-user's level.

Chairperson: Dr Alok Adholeya, TDNBC	
Rapporteur: Dr Ankita Bedi, TDNBC	
PANELISTS	Dr A Neerja *, Joint Secretary, Integrated Nutrient
	Management, Ministry of Agriculture
	Mr. Birendra Bahadur Singh, Vice President –SCM & Corp
	Affairs IRC Agrochemicals Private Limited
	Dr. Manish Patel, Executive Director Incotec India Pvt. Ltd.
	Mr. Sarah Abhiranjan *, CEO, Indogulf
	Mr. Mahesh G. Shetty, MD, Multiplex
	Dr Harish Chandra, Joint Director, Entomology, Directorate Of



	Plant Protection, Quarantine & Storage
	Dr J C Rajput, Director, Nirmal Seeds
Discussion	Moderator: Dr Alok Adholeya, TDNBC
	Discussants: Panelists of the session

05:00 PM - 05:15 PM	VALEDICTORY SESSION
	Summary
	Presentation of Awards for Best Oral and Poster
	presentation
	Vote of Thanks

05:15 PM – 05:45 PM High Tea

* to be confirmed