

Virtual Conference & Exhibition on
**NON DESTRUCTIVE
EVALUATION**

ORGANISED BY
**INDIAN SOCIETY FOR
NON-DESTRUCTIVE
TESTING**



**ND= 20
21**

DECEMBER 9-11, 2021

PRE-CONFERENCE TUTORIALS

**3RD & 4TH
DECEMBER 2021**

3 PARALLEL SESSIONS

ORGANIZING TEAM

ADVISOR

Mr. V. Manoharan, Principal Technologist, Visiconsult X-ray Systems & Solutions

CHAIRMAN

Dr. Deepesh Vimalan, Senior Manager, Bhel Trichy

AND

COURSE DIRECTORS

PRE-CONFERENCE TUTORIAL 1

2D / 3D RADIOLOGICAL IMAGING AND APPLICATIONS 2021 & BEYOND

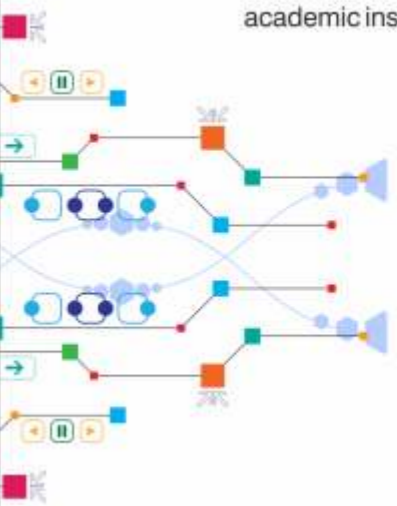


Radiography, due to its direct imaging capability is considered one of the most powerful Non-Destructive Evaluation methods worldwide for various industrial applications. There has been a tremendous enhancement in the defect detection and characterisation capability of this method in the past few decades, due to the introduction of smaller sources and advanced digital imaging systems. Applications of Digital Radiography which offer many advantages over film radiography, are growing in various industries. This pre-conference tutorial aims to provide the participants with an in-depth understanding of latest advances in Digital Radiography.

The tutorial will include, but not limited to the following topics:

- Basic Concepts of Image Processing
- Fundamentals of Digital and Computed Radiography
- Understanding different types of DR detectors and their suitability for various applications
- Introduction to Computed Tomography with case studies
- Latest developments on Robotic based systems with DR
- Analytical Tools that enhance DR interpretation
- Basics of Artificial Intelligence/Machine Learning Techniques
- Status and developments on Assisted/Automated Defect Recognition systems
- A glance through some applications that utilize all or some of the concepts discussed above

Eminent speakers from reputed government organisations, research institutions and academic institution will deliver expert lectures in this program.



NDE 2021
DECEMBER 9-11, 2021

Course Directors PRE-CONFERENCE TUTORIAL 1



Mr. Raj Venkatachalam

Raj Venkatachalam has been involved in the field of Non-destructive evaluation for 18 years and is currently the Systems Engineering Manager at VMI - A Varex Imaging Company. He has a Master's degree in Electrical and Computer Engineering from University of Waterloo and a Bachelors in Electronics and Communication Engineering from University of Madras. He has several certifications in systems and reliability engineering. He is the chair of the AI/ML committee at ASNT and has contributed significantly to the ASTM standards for DR. At VMI, Raj is working on developing engineered solutions using Robotics and Analytical tools to enable next generation tools for Radiography. He is considered as a subject matter expert in the field of Digital Radiography and has close to 10 patents to his credit. He was one of the pioneers to successfully develop a flat panel based subsea detector that was demonstrated successfully to work under water up to a depth of 10,000 ft.

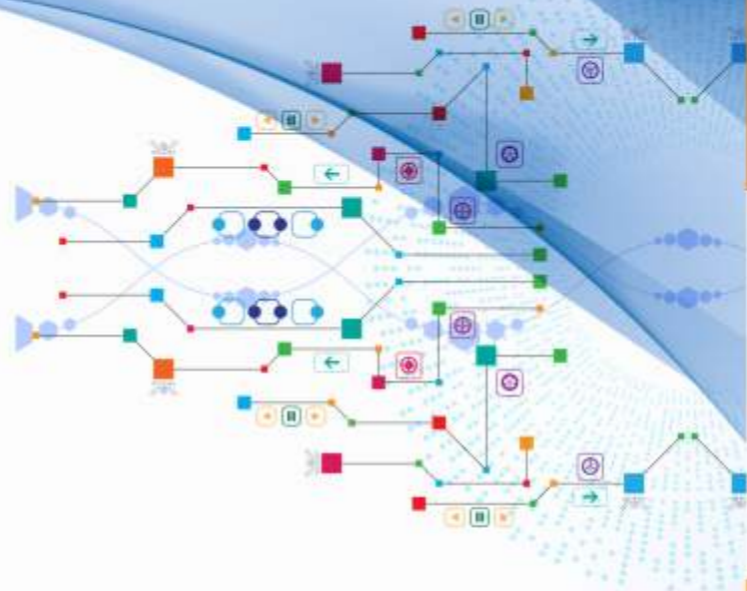


Mr. Anand D. Bagdare

Anand D. Bagdare is with Godrej Precision Engineering (Godrej & Boyce mfg co ltd) as AVP & Head Quality Assurance. He has 25 years of experience in the field of Quality, Manufacturing, Materials, Site erection, Projects, Welding and Metallurgy. He heads NABL accredited Metallurgical testing Lab "GMTL" at Godrej & Boyce Mfg Co Ltd. He is also the principle NDT level III with ASNT Level III certification for UT, RT, PT, MT. He is Member ISNT also coordinating for ISNT "Manufacturing & TPI" committee. He is also a member of IIW. He also volunteers as Vice-chair for ASME NQA India IWG and Secretary for BPV III India IWG. He has experience of using ASME Section II, Section III, Section V and Section IX.

PRE-CONFERENCE TUTORIAL 2

RECENT ADVANCEMENTS IN ACOUSTICS & ELECTROMAGNETIC NDE & APPLICATIONS



The developments in sensors, electronics and computers have brought a paradigm shift in the field of acoustic and electromagnetic NDE techniques in recent time. The results are now more presented in form of composite images providing comprehensive information about the component under inspection, rather than merely the individual oscilloscope or impedance-plane signals at specific locations as in the past. With improved methodologies and techniques, not just the resolution and sensitivities have been improved for the existing applications, new applications have been realized now which were considered impossible earlier. The enhanced modelling and simulation platforms have helped in better planning and visualization of the NDE phenomena. Similarly, applications of machine learning and artificial intelligence in the field of ultrasonic and electromagnetic techniques have paved path for automatic analysis and helping in decision making in industrial applications.

This pre-conference tutorial will expose the participants to the recent developments in the field of ultrasonic and electromagnetic NDE techniques. The basics of these advanced techniques will be covered by eminent researchers and academicians in the field, and the case studies will be discussed by practising engineers.

The broad topics covered in this Pre-conference tutorial include:

- Overview of recent advancements in ultrasonic and electromagnetic techniques
- Basics of phased array ultrasonic testing (PAUT) techniques
- Total focusing method based PAUT techniques
- Guided wave ultrasonic testing for long range inspection
- Simulation of ultrasonic and electromagnetic NDE
- Array based eddy current imaging
- Multi-frequency and pulsed eddy current inspection
- Recent advances in eddy current inspection of steam generator tubes
- Recent advances in eddy current inspection of aerospace components
- Advanced ultrasonic and electromagnetic techniques for corrosion monitoring
- Case studies of ultrasonic and electromagnetic NDE in different industries
- Materials characterization using ultrasonic and electromagnetic techniques
- Applications of machine learning in NDE

The speakers for this tutorial will be a set of highly experienced researchers, academicians and practising engineers in the field from both India and abroad.

Course Directors

PRE-CONFERENCE TUTORIAL 2



Dr. Anish kumar

Dr. Anish Kumar is heading Non-Destructive Evaluation Division in Metallurgy and Materials Group at Indira Gandhi Centre for Atomic Research, Kalpakkam. He obtained B.E. in Metallurgical Engineering from Bihar Institute of Technology, Sindri in 1996 and Ph.D. from IIT, Kharagpur in 2005. In the past 24 years, he has been involved in development of advanced NDE methodologies for inspection of various critical nuclear structures & components. He worked as post-doctoral fellows at Fraunhofer Institute for NDT (IZFP), Germany as Alexander von Humboldt fellow and the University of Michigan, USA for one year each. He has about 120 publications in peer reviewed international journals. He is the recipient of Science & Technology Excellence Award (2015) from Dept. of Atomic Energy, National NDT Award in R&D (2015) from Indian Society for NDT (ISNT) and several young researcher/ scientist awards from various Indian and International societies, such as Department of Atomic Energy (DAE), Indian National Academy of Engineering (INAE), Indian National Science Academy (INSA), Indian Institute of Metals (IIM), The Minerals, Metals and Materials Society (TMS-USA), International Committee for NDT (ICNDT) and ISNT. He is also a member of the Editorial Board of the journal 'Research in NDE' (the research journal of American Society for NDT).

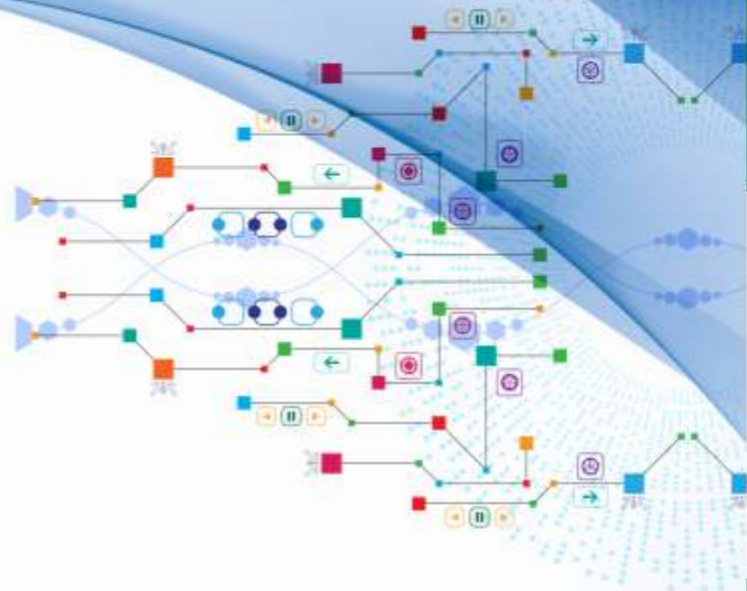


Mr. U. Anand

U Anand is the Head – Reliability of Static Equipment at Reliance Industries Limited. A graduate in Science from University of Chennai followed by graduation in Metallurgical engineering from Indian Institute of Science, Bengaluru. Close to 30 years of experience in managing the integrity of assets in large to very large Petrochemical and Refineries. He has a deep understanding of design of static equipment and degradation mechanisms in typical refinery and Petrochemical plants. He has vast experience in application of conventional and advanced NDE's for in service inspection of assets. He also drives development of new and advanced NDE methods by collaborating with academia and Industry. He has a vision to bring in the next generation technology in NDE for process plants that will be on-line and real time.

PRE-CONFERENCE TUTORIAL **3**

CODES & STANDARDS



Codes and Standards are vital for maintaining superior and consistent quality throughout manufacturing of engineering components and structures. Applying codes and standards in manufacturing can help to ensure that products and services are consistent, compatible, safe and effective in delivering the right quality to the needs of customers. Today, products are assembled from components made in different organizations and countries, and are then supplied around the world, therefore codes and standards are more important than ever. Codes and Standards are developed by various organizations such as ISO, IS, IBR, ASTM, ASME, API, SAE, AWS, BS, EN and many others.

The objective of the tutorial is to understand and interpret codes and standards pertaining to Non-Destructive testing and Quality Control. Experts with ample experience in using codes and standards from various sectors such as Automotive, Aerospace, Oil & gas, Space, Boiler and pressure vessel, Welding Fabrication, Castings, Forgings, cross country pipeline construction, engineering, nuclear components manufacturing will deliver the tutorials and share their experiences on how to interpret latest codes and standards.

This unique pre-conference tutorial is quite useful for practicing NDT professionals, research associates, quality professionals, design engineers and almost everyone connected with NDT to learn, understand, interpret and gain knowledge about the latest international codes and standards related to quality and NDT.

Topics to be covered

- What is code and standard?
- Understanding codes and standards
- National and International codes and Standards pertaining to NDT & Quality Control
- ASME, ASTM, AWS, CSWIP, API, MIL codes and standards on NDT
- IBR, IS, BS, EN & ISO standards on NDT
- Standards related to training & certification of NDE personnel - IS 13805, ICN, SNT-TC-1A, ISO 9712, PCN,
- Case Studies on interpreting codes and standards

Speakers

Eminent and experienced speakers from India and abroad will deliver the sessions and share their experiences from the industry, academia and R&D institutes. Also consulting experts from third party inspection organizations, professionals with vast experience will share in depth knowledge on understanding and interpreting latest codes and standards related to NDT & Quality Control.

Course Directors

PRE-CONFERENCE TUTORIAL **3**



Mr. Ravi Kumar Thammana

Ravi Kumar Thammana is CEO of Trinity NDT, NADCAP Accredited Aerospace NDT facility at Bangalore. He is a graduate in Metallurgical Engineering, International Welding Engineer-IWE, NAS410 Level III and ASNT Level III in UT, MT, PT, RT, VT & ET. He has over 25 years of experience in NDT and Welding with specialization in Aerospace NDT. He is also a jury for India Skills and AP skills in Welding. He also served as Chairman - The Indian Institute of Welding IIW India Bengaluru Branch and Vice Chairman - ISNT Bengaluru Chapter. Currently he is a Council member - IIW India, Technical Committee member - NABL, EC member - The Indian Institute of Metals Bangalore Chapter. He is also a member of Syllabus Committee, Dept. of Technical Education, Govt. of Tamil Nadu and National Skill training institute, Bangalore. He is a guest faculty and delivers invited talks on NDT, Welding, Entrepreneurship Development for reputed Engineering Institutions in India and abroad.



Mr. M. Manimohan

M. Manimohan, obtained M. Sc (Physics) degree from Madras University and M.Tech (NDT) from Regional Engineering College Trichy and Level-II in VT, PT, MT, RT, and UT. He retired as Manager from NDT Laboratory, High Pressure Boiler Plant, Bharat Heavy Electricals limited, Trichy. He has 42 years of experience in the field of Non-destructive testing.

REGISTRATION FEES

Type of Conference Delegate	Registration Fees*
PCT	INR 1500
PCT (Student)	INR 1000
PCT (Foreign)	USD 30
PCT + Conf Delegates (ISNT members)	INR 3500
PCT + Conf Delegates (Non members)	INR 4500
PCT + Conf Delegates (Students)	INR 2000
PCT + Conf Delegates (Foreign)	USD 100

Note: * GST @18% extra • Certificate of participation will be provided • For any queries, please email technical@isntnde.in

MODES OF REGISTRATION

ON-LINE REGISTRATION (INDIVIDUAL)

- Visit NDE 2021 website www.isntnde.in
- Please sign-in to your NDE 2021 account. Click on 'Registration' and fill in the required details.
- Select the payment type as online and follow the payment process.
- Once the payment is made through the payment gateway, you will receive the 'Confirmation Email' containing your details and 'Delegate Registration ID'.
- If the payment is processed and 'Confirmation Email' is not generated, please write an email to info@isntnde.in.
- Student Delegate must upload a letter from HOD/Principal of the college/university mentioning that the concerned delegate is the student of that college/university.

OFF-LINE REGISTRATION (INDIVIDUAL)

- Visit NDE 2021 website www.isntnde.in
- Please sign-in to your NDE 2021 account.
- Click on 'Registration' and fill in the required details.
- Select the payment type as offline.
- Kindly upload scanned copy of Demand Draft/Cheque or NEFT receipt and submit the form. You will receive the confirmation email regarding submission of registration form.
- Once the payment is received in the conference account, you will receive the 'Confirmation Email' containing your details and 'Delegate Registration ID'.
- Student Delegate must upload a letter from HOD/Principal of the college/university mentioning that the concerned delegate is the student of that college/university
- Cheque / Demand Draft to drawn in favour of "ISNT-NDE"

BANK DETAILS

REMITTANCE (FROM OVERSEAS)	
Beneficiary Name	ISNT - NDE
Bank	State Bank of India
Branch	Guindy Branch, No -66, G.S.T Road, Industrial Estate, Guindy, Chennai-600032, INDIA
Account No	38499539214
IFSC Code	SBIN0004327
SWIFT Code	SBININBB227
REMITTANCE (FROM INDIA)	
Beneficiary Name :	ISNT - NDE
Bank	State Bank of India
Branch	Guindy Branch, No -66, G.S.T Road, Industrial Estate, Guindy, Chennai-600032, INDIA
Account No	38499539214
IFSC Code	SBIN0000956
SWIFT Code	600002072

Cancellation & Refund Policy :

- Cancellation of delegate registration is allowed anytime within 7 working days from the date of payment of delegate fees or on or before 20th Nov 2021 whichever is earlier. The request for cancellation can be placed by writing an email to info@isntnde.in. In such case, ISNT will refund the payments already made by you (except the PAYU Money charges of 2.417% + GST @18%, if paid through the online gateway) through the same channel.
- Cancellation of registration is not allowed beyond 20th Nov 2021 and there will be no refund. You can transfer your registration to some other participant from the same organization through which you have registered.
- For this, you need to email your registration transfer request to info@isntnde.in before 2nd Dec 2021.
- Once cancelled within the allowed timeline as mentioned above, the refund will be processed in the original mode of payment, which will be credited within 10 to 25 working days.

F O R M O R E D E T A I L S C O N T A C T

CONFERENCE SECRETARIAT

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Modules 60 & 61, 3rd floor, Garment Complex,
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Guindy, Chennai 600 032, Tamil Nadu, India

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CONFERENCE MANAGERS

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GOLD	SILVER
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