

NON-DESTRUCTIVE EVALUATION ENGINEERING DIVISION
CO-ORGANIZER OF THE SEVENTH NDE TOPICAL CONFERENCE
SAN ANTONIO, TX
APRIL 23-25, 2001

GENERAL INFORMATION

Co-Chairmen:

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Purpose

The purpose of the NDE Topical is to bring together technical, managerial personnel engaged in, and concerned with, fundamental and applied aspects of nondestructive evaluation for the exchange of ideas, methods, and research and development results.

Technical Presentations:

The meeting will consist of plenary lectures and contributed papers. The conference sessions will bring together many of the varied roles of NDE in engineering. Topics to be covered include material/defect/structure characterization, special applications, education, and instrumentation, in the areas of ultrasonics, radiography, tomography, eddy currents, optical/ thermal/radiotracer techniques, and emerging technologies. All sessions will take place in the Mahncke Room, on the Third Floor.

Registration

The registration desk will be located in the Foyer on the Third Floor.

<u>Hours:</u>	Monday	7:00 am – 4:00 pm
	Tuesday	8:00 am – 4:00 pm
	Wednesday	8:00 am – 10:00 pm

Author's Practice Room

Suite # will be available for authors to practice their presentations. An overhead projector, a screen and slide trays will be available.

<u>Hours:</u>	Monday	7:00 am – 4:00 pm
	Tuesday	7:00 am – 4:00 pm
	Wednesday	7:00 am – 11:00 pm

Author's Breakfast

All authors are encouraged to attend the Author's Breakfast the day of their presentation, from 7:30 am – 8:15 am. There will be an author briefing by the session chairs each morning. The breakfast will take place in the Frontier Room on the Third Floor.

Publications

Papers presented at the NDE Topical Conference will be published in a booklet. All attendees paying full registration fees will receive the booklet post-conference.

Founder's Award

Dr. Ajit K. Mal has been selected the recipient of the ASME NDE Divisions Founder's Award for his exemplary achievement in NDE and engineering. The award will be presented on Tuesday at 1:30 pm, during the Honors & Awards Session.

Tour

All attendees are invited to attend a tour of the NDE Facilities at Southwest Research Institute on Wednesday from 2:00 pm to 4:30 am. Refreshments will be served. Transportation will be provided. The bus will depart from the **front lobby** of the hotel.

Social Event

Included with full registration is a dinner Tuesday night at Casa Rio, on the Riverwalk, a few blocks from the Sheraton Gunter Hotel. Additional tickets are \$30, and must be purchased for students, retired members and guests. Attendees will depart from the front lobby at 6:15 pm.

Guest Hospitality

A family hospitality room will be open Monday through Wednesday, 8:30 am – 10:00 am for accompanying guests and spouses. Continental Breakfast will be served in the Frontier room, on the Third Floor.

Fiesta San Antonio

Fiesta[®] San Antonio will take place from April 20th through April 29th. One of America's truly great festivals, Fiesta[®] San Antonio is a 10-day celebration held every April to honor the memory of the heroes of the Alamo and the Battle of San Jacinto, and to celebrate San Antonio's rich and diverse cultures. There will be plenty of fun-filled activities, food and music for the whole family. This year marks the 110th celebration! For more information, please visit the following website: www.fiesta-sa.org/index.html

Cooperating Societies

Members of the following societies may register at the ASME member rate:

ASNT – United States, ASME – Albania, CAI – Argentina, IEAust – BSE – Bahrain, IE – Bangladesh, BAN – Belarus, BSMEE – Belgium, ABCM – Brazil, CSME – Canada, CMES – P.R. China, CSME – Taipei, ACIEM – Colombia, CMEA – Cyprus, CMES – Czech Republic, IDA – Denmark, ESME – Egypt, AFM – France, ISF – France, GAES, Republic of Georgia, VDI – Germany, GHIE – Ghana, HAMEE – Greece, HKIE – Hong Kong, GTE – Hungary, IE – India, IME – India, IE – Indonesia, IE – Ireland, SMEI – Israel, ASMECCANICA – Italy, UIT – Italy, JSME – Japan, KSME – South Korea, AMIME – Mexico, KIVI – The Netherlands, IPENZ – New Zealand, NSF – Norway, PSME – Philippines, SIMP – Poland, OE Portugal, RSME – Romania, RAN – Russia, IE- Singapore, SMES – Slovakia, ZSITS, SAIMechE South Africa,

FAIIE – Spain, SMR – Sweden, TMMOB – Turkey, USME / NAS – Ukraine, IE – United Kingdom, AIChE, AIME, ASCE, IEEE, ASCE – United States, ImechE-United Kingdom, CIV – Venezuela, SMEITJ – Yugoslavia.

PROGRAM AT A GLANCE

MONDAY, APRIL 23RD

8:30 am – 9:00 am	Welcome Session
9:00 am – 10:00 am	Plenary Session I <i>Chair: T. Kundu</i> Speaker: Joe Rose, Penn State "NDE Applications of Guided Waves"
10:15 am – 11:45 am	Plenary Session II <i>Chair: C. Darvennes</i>
10:15 - 11:00	Speaker: Jean-Pierre Monchalin, IMI-CNRC (Canada) "Laser and Optical Based NDE for Manufacturing"
11:00 - 11:45	Speaker: Gene Reinhart, Reinhart and Associates "NDE as an Engineering Profession"
1:45 pm – 2:55 pm	Session 1 Microscopic NDE of Materials - I <i>Chair: Y. Dzenis</i> <i>Co-Chair: J. Turner</i>
1:45 - 2:08	"Applications of Laser-Ultrasonic Technique to Evaluate Microstructure Variation in Materials" A. Maslouhi, Université de Moncton, Moncton, New Brunswick
2:08 - 2:31	"Atomic Force Acoustic Microscopy for Materials Characterization of Microelectromechanical Systems" Joseph A. Turner, Roshanak Nilchiani, and Joshua S. Wiehn, University of Nebraska-Lincoln
2:31 - 2:55	"Atomic Force Microscopy Studies on the Properties of a Short Carbon Fiber Reinforced PEEK/PTFE Compound" S. Schmitt, Y. Han, and K. Friedrich, University of Kaiserslautern, Germany
3:10 pm – 4:25 pm	Session 2 Microscopic NDE of Materials – II <i>Chair: J. Turner</i> <i>Co-Chair: Y. Dzenis</i>
3:10 - 3:35	"Analysis of Microdamage Evolution Histories in Composites" Y. Dzenis and J. Qian, University of Nebraska-Lincoln

- 3:35 - 4:00 "Importance of Multiply Reflected Signals in V(z) Curve Analysis for Material Characterization by Acoustic Microscopes", T. Kundu, University of Arizona, and C. S. Jørgensen, Aarhus University Medical School, Denmark
- 4:00 - 4:25 "Microthermal Analysis with Scanning Thermal Microscopy" V.V. Gorbunov, ThermoMicroscopes, CA, and V.V. Tsukruk, Iowa State University

TUESDAY, APRIL 24TH

8:30 am – 10:00 am

Session 3

Structural Health Monitoring & MEMS

Chair: V. K. Varadan

Co-Chair: S. Joshi

- 8:30 - 8:53 "Wireless MEMS Sensors for Health Monitoring of Structures" V. K. Varadan and V. V. Varadan, Pennsylvania State University
- 8:53 - 9:15 "Embedded Active Sensors for In-situ Structural Health Monitoring" Giurgiutiu, Andrei Zagrai, JingJing (Jack) Bao, University of South Carolina
- 9:15 - 9:38 "Wireless Structural Health Monitoring of Buildings and Bridges" Shiv P. Joshi, University of Texas at Arlington
- 9:38 - 10:00 "Wave Propagation Induced by Piezoelectric Actuators for Health Monitoring of Electromechanical Structures" X. D. Wang and G. L. Huang, University of Alberta

10:15 am – 11:45 am

Session 4

Advanced NDE Techniques

Chair: G. Cunningham

Co-Chair: V. K. Varadan

- 10:15 - 10:38 "Comparison of Acoustoelastic Methods to Evaluate Stresses in Steel Plates" Auteliano Antunes dos Santos Junior, Univ. Estadual de Campinas, and Don E. Bray, Don E. Bray, Inc.
- 10:38 - 11:00 "Quality Inspection of Polymeric Medical Tubing Using Non-Contact TAP-NDE" Kent D. Harms and C. Steve Suh, Texas A&M University
- 11:00 - 11:22 "Inverse Evaluation of Temperatures, Heat Fluxes, Deformations, and Traction on Inaccessible Surfaces of 3D Objects" Dennis, B. H. and Dulikravich, G. S., University of Texas at Arlington

- 11:22 - 11:45 "A Quasi Nondestructive Testing of Hollow Thermo-Plastic Bosses Fitted with Self Tapping Screws"
Narayan R. Joshi, PVAMU
- 1:30 pm – 2:15 pm** **Honors & Awards Session**
Chair: D. E. Bray
Co-Chair: G. Cunningham
- 1:30 - 1:45 Presentation of ASME NDE Founders' Award
Presentation of ASME NDE Best Paper Award for Year 2000
- 1:45 - 2:15 NDE Founders' Award Lecture
"NDE for Health Monitoring of Structures"
Ajit K. Mal, UCLA
- 2:20 pm – 3:00 pm** **Session 5**
Thermal Imaging and Computer Tomography
Chair: S. Keating
Co-Chair: W. Springer
- 2:20 - 2:40 "High-Energy and Thermal Neutron Imaging and Modeling with an Amorphous Silicon Flat-Panel Detector"
Thomas N. Claytor , Terry Taddeucci, Charles Hills, Anthony Davis, T. E. McDonald, and D. A. Summa, Los Alamos National Laboratory
- 2:40 - 3:00 "Further Advancements for Large Area-Detector Based Computed Tomography Systems"
Anthony Davis and Scott Keating, Hytec, Inc. and Thomas N. Claytor, Los Alamos National Laboratory
- 3:15 pm – 4:35 pm** **Session 6**
Guided Waves
Chair: T. Kundu
Co-Chair: Glenn Light
- 3:15 - 3:35 "Characterization Electroactive Polymers Using LLW Measurement"
Shyh-Shiuh Lih and Yoseph Bar-Cohen, Jet Propulsion Laboratory
- 3:35 - 3:55 "Development of a Guided Wave Technique to Defects in Thin Steel Plate Prior to Stamping"
Glenn Light and Ali Minachi, SwRI
- 3:55 - 4:15 "Elastic Guided Waves in a Layered Plate with a Rectangular Cross Section", O. M. Muktadi, S. K. Datta and M. L. Dunn
University of Colorado

4:15 - 4:35

**EFFECTIVENESS OF IMPARTING INSTRUCTIONS THROUGH
VIDEO PROGRAMME AND TEACHERS IN PERFORMING A
LABORATORY EXPERIMENT**

"A CASE"

Prof. K.K. Jain , Head of Mechanical Engg. Deptt., Technical Teachers' Training Institute, Shamla Hills Bhopal (M..P.) India , kamleshkjain@hotmail.com, Ph: 661601-603

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WEDNESDAY, APRIL 25TH

8:30 am – 10:00 am

Session 7

Radiography, Eddy Current, Process Control

Chair: G. P. Singh

Co-Chair: Boyd Howard

8:30 - 8:53

"Conventional Film Radiography vs. Digital Radiography
(A Study that Directly Compares Some of their Attributes)"
Richard Poland, David Immel and Boyd Howard,
Westinghouse Savannah River Company, Savannah River Site

9:53 - 9:15

"Applications for Conformable Eddy Current Sensors and High
Resolution and Deep Penetration Sensor Arrays in Manufacturing
and Power Generation"
Vladimir Zilberstein, Tim Lovett, Andrew Washabaugh, Neil
Goldfine, JENTEK Sensors, Inc.

9:15 - 9:38

"Applications of MsS for Process Control in Steel Mills"
Hegeon Kwun, and Kim Sang, SwRI

9:38 - 10:00

"Technology Transfer and NDE: a Difficult Step"
Gene Reinhart, Reinhart and Associates

10:15 am – 11:45 am

Session 8

Thermal and Optical Techniques

Chair: C. Darvennes

Co-Chair: Gene Reinhart

10:15 - 10:38

"Determination of Stresses in Thin Silicon Plates with Near-
Infrared Phase Stepping Photoelasticity"
Tieyu Zheng and Steven Danyluk, Georgia Institute of Technology

10:38 - 11:00

**"Theoretical Investigations of the Thermoelectric Magnetic Field
in Materials Characterization"**

Adnan Nayfeh and Waseem Faidi, University of Cincinnati

11:00 - 11:22

"Detection of Surface Imperfections in Metals by a Noncontacting Thermoelectric Method"

Hector Carreon and Peter B. Nagy, University of Cincinnati

11:22 - 11:45

"The Effect of Optical Penetration in Thermoelastic Wave Propagation in Layered Structures"

C. Cetinkaya, J. Lin, C. Li and R. Vanderwood, Clarkson University

Chair Index

Author Index