

February Meeting

Topic: NDT EXPO 2004
Date: Thursday February 5th, 2004
Location: Museum of Flight
9404 East Marginal Way S
Seattle, WA 98108-4097
Time: 6:00 pm - 9:00 pm

Take exit 158 from I-5. Go west. Turn right at the first light (E. Marginal Way S.) The Museum is on the right, 1/2 mile. Or take METRO bus #174 from downtown Seattle or Sea-Tac Airport

Would you or someone you know like to be a guest speaker at a section meeting? Is there a topic you would like to hear about? If so contact ward.a.fong@boeing.com

Your advertisement could be in this newsletter. Contact ward.a.fong@boeing.com regarding rates.



Emery E. Roberts
Secretary, Pacific Northwest Section
1807 S 118th #202
Seattle, WA 98168

RETURN REQUESTED

Mailing label



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For term June 1, 2003 to May 31, 2004

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SECTION NEWS

Electronic Newsletter Distribution

We would like to stop sending you paper copies of the monthly newsletter. Please send email to secretary@asntpnws.org so you can be removed from the paper newsletter mailing list. Include the following information:

1. Name
2. The fact that you want to stop getting the paper copy
3. Email address to receive email copies only.

Most company email servers will not accept email unless it has a specific address such as you@server.com.

If your E-mail address has changed, please E-mail the changes to the Chapter's Sec. at secretary@asntpnws.org.

THE WEB PAGE HAS 2 REAL-TIME CHAT ROOMS

Access them by choosing either PNW Chat 1 or PNW Chat 2 from the main page at <http://www.asntpnws.org> PNW Chat 1 has an unlimited number of simultaneous users and unlimited number of users. A password is normally not needed to login here. PNW Chat 2 has a limit of 10 simultaneous users and an unlimited number of users. Once again a password is normally not needed.

GENERAL OVERVIEW

The chat rooms use HTTP tunneling allowing users of the same website to communicate with each other in real time using text messages.

The chat room interface consists of a *User List* on the right showing the usernames of users currently in the chat room, the *Message Output* area in the center where room messages are displayed, the *Message Input* area located beneath the output area where you type your own messages for the room, plus various *Menus* and *Buttons* to perform more advanced functions within the room.

Messages that you type into the *Message Input* area are sent to all users of the room and displayed in the *Message Output* area.

ENTERING THE ROOM

To enter the chat room, locate the chat login box and enter your desired nickname into the box marked *Member Name*. Valid usernames must be 3-15 characters in length and consist of standard letters and numbers only.

Once the above details have been entered, click the *Chat* button to connect to the chat room. Once connected, the chat room window will show.

CHAT IN THE ROOM

While connected to the chat room, any messages typed by other users will be shown in the large *Message Output* area. To send your own messages, type them into the *Message Input* area and press the *Enter* key on your keyboard or *Send* icon.

The chat rooms can be used for board meetings, get-togethers, etc. As with NDT the limit of use is your imagination.

LEVEL III CERTIFICATES

Certificates are available at each meeting to document your meeting attendance for Level III renewal points. See an officer for details.



COMING EVENTS

NDT Expo, February 5, 2004 at the Museum of Flight, Seattle, WA.

(See the only Concord on the West coast – it set a new world's record time from New York to Seattle) Anyone interested in assisting the planning committee, please contact a board member. Note: Vendor's interested in having a table/s, for this event, please contact any of the following EXPO committee members: [Lynn Graham](#), [Bob Swisher](#), or [Ward Fong](#). A list of exhibitors can be found on page 5 of this issue. Tables are going fast. A rapid response via email or phone to confirm your desire to take part in the event is appreciated. Table Fee's will be \$225 for 1 table. 2 tables will be \$375. Contact [Ward A. Fong](#) if interested.

A Seminar on Radiation Safety

Saturday, March 20, 2004

Mountaineers Club

Objective

The objective of this seminar is to provide the radiographer with eight hours of refresher information designed to help reduce over-exposure, the risk of over-exposure, and provide safety officers and managers with a refresher course on the subject. This course is designed to comply with the radiation safety refresher training requirements of industry and each participant will be provided a certificate of attendance upon completion of the seminar.

Subjects Covered Include:

Necessity for a Seminar on Radiation Safety; Radiation Equipment; Effect of Radiation Exposure; Government Radiation Regulations; Fundamentals of Radiation Safety; Radiation Detection Equipment; and Transportation Requirements. Speakers have included people from the State of Washington DOH Radiation Control Division, AEA, The Boeing Company, Pacific Northwest Laboratories, Flohr Hanford, CSI-Radiation Safety Academy, University of Washington, ICN Dosimetry and Ft. Lewis.

OTHER EVENTS – 2004

- JAN 11-15 **The American Society For Testing And Materials (ASTM) Committee E-7 On-Nondestructive Testing Meeting**, Tampa Marriott Waterside, Tampa, Email: gluciw@astm.org Website: www.astm.org
- FEB 4-6 **2004 ANNUAL NDTMA CONFERENCE**, Caesars Palace, Las Vegas, NV
- MAR 8-12 **13th Annual Research Symposium 2004** (ASNT Spring Conference), Hilton Austin, Austin, Texas. Contact ASNT at kwise@asnt.org. See [Call for Abstracts](#), [Online Abstract Submission](#), [Invitation to Exhibit](#).
- MAR 14-18 **Smart Structures/NDE 2004**, Town and Country Resort & Convention Center, San Diego California. Visit the Conference website at <http://spie.org/Conferences/Calls/04/ss/conferences/index.cfm> for further information or contact SPIE: 1-360-676-3290, Fax: 1-360-647-1445.
- MAY 9-11 **NDT in the Heartland: An Aerospace Perspective**, Hyatt Regency Wichita, Wichita, Kansas. Contact ASNT at kwise@asnt.org.
- SEP 14-17 **Structural Materials Technology (SMT): NDE/NDT For Highways and Bridges**, Buffalo Hyatt Regency, Buffalo, New York. Contact ASNT at kwise@asnt.org. See [Call for Papers](#), [Online Abstract Submission](#), [Invitation to Exhibit](#).
- NOV 15-19 **ASNT Fall Conference and Quality Testing Show**, Riviera Hotel, Las Vegas, Nevada. Contact ASNT at kwise@asnt.org. See [Exhibitor Prospectus](#) and [Exhibitor Contract](#).
- MARCH 30-APRIL 1 **AeroNDT 2004 Exhibition & Technology Forum**, Hamburg, Germany, <http://www.AeroNDT.com> or <http://www.aerospacetesting-expo.com>
- JULY 25-30 **31st Annual Review of Progress in Quantitative Nondestructive Evaluation**
Colorado School of Mines, Golden, Colorado <http://www.cnde.iastate.edu/qnde/qnde.html>
- AUG 30 - SEP 3 **16th World Conference on Nondestructive Testing**, Montreal, Canada, <http://www.wcndt2004.com>

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Section Web Pages

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[Central Florida Section](#)
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[New Orleans Section](#)
[North Atlantic Section](#)
[Oklahoma Section](#)
[Pacific Northwest Section](#)
[Pittsburgh, Pennsylvania Section](#)
[San Diego, California Section](#)
[South Texas Section](#)

WEB LINKS

Nondestructive Testing Management Association (NDTMA) <http://www.ndtma.org>
Center for Nondestructive Evaluation
at Iowa State University <http://www.cnde.iastate.edu/Default.htm>
Personnel for Quality and Nondestructive Testing, Inc (PQNNT) <http://www.pqndt.com/>
Sonotech, Inc. <http://www.sonotech-inc.com/>
Inspection jobs.com <http://www.inspectionjobs.com/>
NDT Mall <http://www.NDT-Mall.com/>
ASNT Job Market..... <http://www.asnt.org/marketplace/jobs.htm>
NDT at Ridgewater College <http://www.ndt-hutch.com>
Business Communications Company (Stay up to date on new technology)
..... <http://www.buscom.com/letters/ndtpromo/ndtpromo.html>
NDT Resource Center <http://www.ndt-ed.org>

If you have a favorite site related to nondestructive testing please [submit it](#).

MEETING DATES

Below is a list of meeting dates, topics and speakers. Meeting date is the second Thursday of the month unless otherwise noted. In case of last minute changes be sure to check the section website at <http://www.asntpnws.org/>.

Future Meetings are on the second Thurs. of each month unless noted otherwise.

Date	Topic, Speaker, Company
Sept. 8 th	NDT in South America, Jim Pellicer, The Boeing Company
Oct. 9 th	Acoustic Emission Basics, Peter Don, Physical Acoustics
Nov. 20 th	High Energy Applications of RT in Homeland Security, Dave Hall, L & W Research AGFA
Dec. 11 th	Christmas Party
Jan. 8 th	Industry tour to AMEC
Feb. 5 th	NDT Expo at the Museum of Flight, (entry to Expo also provides entry to Museum)
March	Spring Social and Bylaw Revisions
April 8 th	Joint meeting with AWS or ASQC and/or Regional Director
May 13 th	UT Applications & Elections
June	Annual Picnic
July	Executive Board meeting
August	Annual Golf Tournament

If you have a nominee for an award please contact the awards chairman (John DeBoo), a section officer or leave a message to awards@asntpnws.org or complete the survey on the section web page (www.asntpnws.org).



MORE SECTION NEWS

The [section web site](#) contains two surveys and a member database. A [membership survey](#) is about general section operations and meeting dates. An [educational survey](#) asks for your input on which educational topics are best suited for our membership. Please take a few minutes to complete these surveys to provide input for the board. They do get looked at so your input is important in deciding which direction the section travels.

MEMBERSHIP DATABASE

Also located on the section web site. Keep your information up to date in order to get the latest newsletter and other information.

MEMBERSHIP RENEWAL

For renewals within 6 months of expiration use the form at

<http://www.asnt.org/membersonly/forms/individmrenew.ihtml>

If your membership expired more than 6 months ago, please use the form at

<http://www.asnt.org/membership/forms/individualmema.ihtml>.

WELCOME NEW OR RENEWED MEMBERS

Dr Donald A Bender, Mr. Carsten C Nelson, Mr. David Lykken, Mr. Donald Colberg, Mr. Doug Mellor, Mr. James D Kronewitter, Mr. James E Cox, Mr. Jason Lund, Mr. Jim C Reid, Mr. John Bangsund, Mr. John K Kirchhofer, Mr. Michael D Gould, Mr. Pete P Torelli, Mr. R Aaron Falk, Mr. Rick A Ingram, Mr. Robert Baleisis, Mr. Steven V Rush, Mr. Tom R Moore

PAST EVENTS

Industry Tour of AMEC facilities on January 8, 2004 at 11335 NE 122nd Way, Suite 100, Kirkland, WA. Thirteen members and guests enjoyed a buffet presented by AMEC and an informational presentation on the services provided by AMEC. A sumptuous buffet of fried and baked chicken, assorted vegetable appetizers, potato salad, rolls and crackers was enjoyed by all. The highlight of the evening was that portion of the presentation dealing with infrared thermography. The names of all attendees were gathered for the year-end cash drawing. A hearty thank you to the sponsors of this event goes out to AMEC's Greg Schroeter and Sean Riccardelli.

The 30-dollar door prize is being contributed to an accumulative pot that has the name of attendees at each meeting entered. So the more meetings you attend the better your chances are at winning the pot at the end of the year. (\$30 x 8 = \$240! If we have more than 8 meetings the pot grows that much more. Better odds than the lottery!).

NDT EXPO 2004 EXHIBITORS on 1-18-04 - Museum of Flight, Seattle (Exhibitor set-up 4 p.m.-6 p.m.)

AMEC <http://www.amec.com/earthandenvironmental/where/officeprofiles.asp?PageID=1010&OfficeID=182>

American NDT <http://www.americanndt.com>

Envision Product Design <http://www.cmosxray.com>

GE Inspection Technologies (AGFA)..... <http://www.geinspectiontechnologies.com>

Hytec Incorporated <http://www.hytecinc.com>

Inspection Technologies Incorporated <http://www.inspectiontechnologies.net>

Karl Storz Endoscope <http://industrial.ksea.com/>

L & W Research, Inc <http://www.lwresearch.com/>

MPM Products <mailto:lynngraham@mpmproducts.com>

NDT engineering corporation, a division of RD Tech <http://www.rd-tech.com/ndte/index.html>

Olympus..... <http://www.olympusamerica.com>

Panametrics NDT, a division of RD Tech <http://www.panametrics-ndt.com/ndt/index.html>

RD Tech <http://www.rd-tech.com/>

Staveley NDT <http://www.staveleyndt.com/>

UniWest <http://www.uniwest.com>

Xactex Corporation <http://www.xactex.com/>

Yxlon International <http://www.yxlon.com/>

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NDT EXPO 2004

AT THE

MUSEUM OF FLIGHT

9404 E Marginal Way South, Seattle, WA 98108. 206-764-5700

The Museum of Flight appreciates client cooperation in adhering to these briefly stated guidelines. If you have any questions, please contact a member of the Pacific Northwest Expo committee.

General Policies

- No smoking anywhere in the building. Ash cans are located at all entrances and on balconies.
- Do not touch exhibits.
- No one is allowed in the Museum galleries after hours unless accompanied by Museum staff or a docent.
- Plants may not be moved.
- All printed materials which describe the Museum of Flight or use the logo are subject to Museum approval prior to printing.

Facility Rental Guidelines

- To avoid confusion, please designate one contact person for your event.
- Deliveries will only be accepted on the actual day of the event. Be sure to mark all deliveries to the attention of the Special Events Department. Please check with your Special Events representative for directions to the appropriate loading dock.
- All delivery vehicles must remain outside exterior loading dock doors. The loading dock door is to be operated by Museum or catering staff only.
- No loading or unloading of equipment will be allowed through the Side Gallery or lobby doors.
- All equipment (staging, dance floors, décor, pianos, meeting materials, etc.) must be removed immediately after the event concludes.
- Dancing is permitted in the Side Gallery and Skyline Room only. Dance floor rental must be arranged through McCormick & Schmick's Catering.
- All amplified music must be approved in advance by the Special Events department. The maximum volume allowed is 98dB.
- All clients and vendors must supply their own equipment (extension cords, power strips, carts, flipchart easels, pens, etc.) All cords must be secured with gaffer's tape.
- Audio-visual equipment rental is charged on a first-come, first-served basis. Cancellations must be made within two (2) business days, or rental charges will be incurred.
- Museum of Flight office telephones are for Museum business use only. Courtesy phones are available for outgoing calls, and pay phones are available throughout the Museum.
- Client is responsible for collecting all leftover materials, breaking down all boxes, and assisting Special Events lead with removal to south loading dock.
- All events must conclude by midnight.

Decorations

- No candles may be used in the Museum.
- No glitter, confetti, rice, birdseed, flower petals, etc. Bridal bubbles must be used outside.
- All equipment and décor must be placed a minimum of three (3) feet from exhibits and their related parts. Museum artifacts, exhibits, or furnishings may not be moved.
- No taping or tacking of decorations or meeting materials to walls, windows, woodwork or exhibits. 3M Post-it® pads are allowed and are available through the Special Events department.
- Decorations and signs must be freestanding. Do not lean any equipment against walls.
- We prefer balloons to be delivered already inflated. However, if you choose to inflate balloons on site, you must do so at the south loading dock. Helium tanks must be secured to a post. For safety reasons, no balloons may leave the building. A \$50 recovery fee will be assessed for each balloon lost in the Great Gallery space frame.
- All floral arrangements and greenery are to be delivered to the designated loading dock and must be pest free. Trees must also be flame retardant. For protection, containers must be placed under plants and trees.

Catering

- We are pleased to have [McCormick & Schmick's Catering](#) as our exclusive caterer. Please contact them at 206-762-4418 for menu planning and event coordination.
- Beverages or foods with a tendency to stain (i.e., red wine, berries, fruit punch, etc.) are only permitted in the Skyline Room and Red Barn areas, or at sit-down dinners.

YEAR BOOK

Member names and addresses are a yearbook requirement. Unless the address of the member is specifically authorized for inclusion it will not be published. In preparation for the 2004-2005 section yearbook a request is being made for inclusion of your address in the yearbook. If you do not wish your address published, do nothing. If you do send a message authorizing your address publication to yearbook@asntpnws.org. If you are interested in serving on the yearbook committee please use the Member Survey form on the section web page at <http://www.asntpnws.org/>.

The 2003-2004 YEARBOOK is available on the section web site at <http://www.asntpnws.org/newsletters>



NDT INDUSTRY NEWS

ULTRASONIC DETECTION AND CHARACTERISATION OF DEFECTS USING ELECTROMAGNETIC ACOUSTIC TRANSDUCERS (EMATs)

B.P.C. Rao, T. Jayakumar, P. Kalyanasundaram and Baldev Raj
Metallurgy and Materials Group
Indira Gandhi Center for Atomic Research Kalpakkam - 603 102, Tamil Nadu
e-mail: bpcrao@igcar.ernet.in

ABSTRACT

Electromagnetic Acoustic Transducers (EMATs) are finding attractive applications in many areas of ultrasonic NDT, especially because of their non-contact nature as compared to the conventional piezoelectric transducers (PZTs). One EMAT generated wave mode that has provided solution to many ultrasonic non-destructive inspection problems is the Shear Horizontal (SH) wave mode. This is essentially due to the absence of mode conversion, beam skewing and distortion. SH waves can not be efficiently generated using PZTs. SH waves generated by EMATs have been used to detect and characterise defects in stainless steel plates and welds. This paper discusses the development of Time-of-Flight Diffraction based method to size fatigue cracks and machined notches in stainless steel (SS) plates. Besides, a new signal processing method based on artificial neural networks is presented, to detect and characterise defects in difficult-to-inspect austenitic SS welds.

1.0 ELECTROMAGNETIC ACOUSTIC TRANSDUCERS (EMATs)

EMATs are electromagnetic devices that essentially consist of a stack of wires and magnets (refer Figs. 1 and 2) to excite and detect ultrasonic waves in electrically conducting materials whether they are magnetic or non-magnetic. When EMAT transmitter is placed near an electrically conducting material, not necessarily in contact with, ultrasonic waves are launched in the material through the reaction of induced eddy currents and static magnetic fields [1]. This eliminates the problems associated with acoustic coupling to the material under examination as the electromechanical conversion takes place directly within the electromagnetic skin depth of the material. Thus, EMATs do not require a couplant and hence can be used to launch ultrasonic waves in components at elevated temperatures. EMATs are reciprocal devices i.e. they can be used as receivers as well as transmitters of ultrasound [2]. In the recent years, EMATs are used for a variety of NDE applications [3]. The basic principle, design and applications of EMATs are discussed in this section.

1.1 Basic principle

When a wire, placed near to the surface of an electrically conducting object, is driven by an alternating current at a desired ultrasonic frequency, eddy currents will be induced in the object by electromagnetic induction. Their penetration in the object is given by the classical electromagnetic skin effect [3]. In the presence of a static magnetic field (B_0), these induced eddy currents (J) will experience Lorentz forces (f) given by $f = J \times B_0$. Through a variety of interactions, these Lorentz forces are transmitted into the lattice and serve as a source of ultrasonic waves. The same or another EMAT or PZT can be used to receive the ultrasonic waves reflected or refracted, like in the case of conventional PZTs, to carry out ultrasonic examination of components. The internal structure of an EMAT consisting of a magnet and a coil, wave generation (skin effect) region and radiation pattern are illustrated in Fig.1 [1].

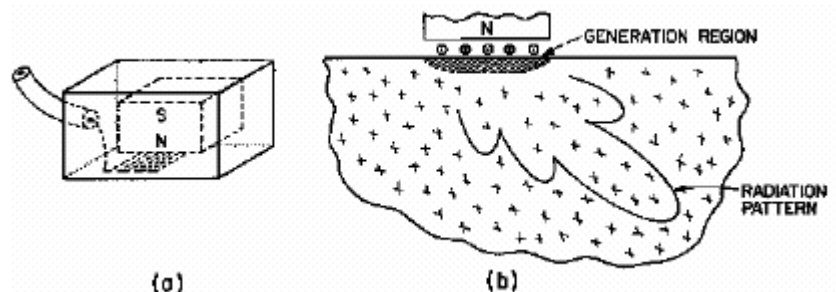


Fig.1 Schematic of an EMAT
a) the internal structure and
b) the radiation pattern.

Read the entire article at <http://www.geocities.com/raobpc/JNDE-EMAT-Paper.PDF>

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SECTION PHOTO COLLAGE

Anyone that has any old photos of past local ASNT people/functions or anything that may be interesting for a section photo collage, please contact [Lynn Graham](#). She would like to put together something nice for the section and is asking for your help in doing so. Thanks very much. Lynn can be reached at (253) 813-1811.

NEWSLETTERS

We are looking for past newsletter/meeting notices for any year for inclusion on the web site. Of particular interest are those edited by Mr. Harold Pinsch. If the section can borrow them for scanning purposes please contact a board member.

RADIATION SAFETY REFRESHER SEMINAR REGISTRATION FORM

Registrant(s): _____

Company: _____

Address: _____

Work Phone: _____ Home Phone _____

Fax Email: _____

Check No.: _____

Mail to

Emery E. Roberts
1807 S. 118 #202
Seattle, WA 98168

Group Rates

No. of participants	Register by 3/19/04	Register after 3/19/04
1	\$85	\$95
2	\$80	\$85
3-5	\$75	\$80
6-10	\$70	\$75
11-15	\$65	\$70
16-20	\$60	\$65
20+	\$55	\$60

When:

7:30 AM - 4:00 PM
March 20, 2004

Where:

Mountaineers Headquarters
300 Third Ave. West
Seattle, WA 98119

PRESIDENT'S POINTS

First quarter standings have the Pacific Northwest section tied with the Houston section for 9th place. Second quarter point total is 5,280 for the first half of the year out of a possible 12,500 for the year.

NEWSLETTER ADDRESS LABEL

The first line of the address label contains the member number followed by the expiration date of membership for that number.