

**44th Annual Review of Progress in Quantitative Nondestructive Evaluation**

# **Second Call for Papers**

**preceded by World Federation of NDE Centers Short Course  
(July 15-16, 2017)**

**Utah Valley Convention Center Provo, UT, July 16-21, 2017**



# World Federation of NDE Centers Short Course

**Utah Valley Convention Center, Provo, Utah, July 15–16, 2017**

The course will be focused on introducing and reviewing the challenges and opportunities to use NDE methods for materials characterization.

**Registering for both the QNDE conference and the short course will earn you a discounted tuition.  
(price located at the end of this document)**

## Schedule

### Day 1:

- **Session 1:** Description of desired outcome, summary of work to date
- **Session 2:** Challenges in materials systems (metals and composites - both OMC and CMC)
- Lunch
- **Session 3:** Simulation tools available for materials
- **Session 4:** Analytical tools available for materials

### Day 2

- **Session 1:** Data representation for materials systems (materials perspective and NDE perspective)
- **Session 2:** Options to address challenge
- Lunch
- **Session 3:** Thoughts on properties and possible solutions
- **Session 4:** possible panel discussion / open forum to explore solution space

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# The Conference

The 44th Annual Review of Progress in Quantitative Nondestructive Evaluation Conference (QNDE) takes place July 16-21, 2017, in Provo, UT. You are invited to participate in this conference, and a collocated short course on "Material State Awareness" organized by Peter Collins (Iowa State University) and Eric Lindgren (U.S. Air Force) and sponsored by the World Federation of Nondestructive Evaluation Centers (WFNDEC), to be held July 15-16, 2017. These events will focus on current, state-of-the-art research and opportunities in this growing and demanding field.

QNDE is the premiere international NDE meeting designed to provide an interface between research and early engineering through the presentation of current ideas and results focused on facilitating a rapid transfer to engineering development. The annual QNDE Conference is hosted by QNDE Programs and organized by the Center for Nondestructive Evaluation (CNDE), at Iowa State University. The meeting has financial support from the American Society for Nondestructive Testing (ASNT) and is conducted in cooperation with CNDE's sponsor members.

The proceedings from the conference are published by the American Institute of Physics and papers are indexed in and also available through "Scitation", the online home of journals and conference proceedings from AIP Publishing.

For more information:  
[www.qndeprograms.org](http://www.qndeprograms.org)

## Keynote Addresses

**"From NDE to Material State Awareness" is the theme for the QNDE**  
**Keynote speakers:**

**David Forsyth**, Texas Research Institute

**Nader Saffari**, University College London

**Bert VanderHeiden**, Orbital ATK

The meeting will include special topical sessions with distinguished and invited presentations to highlight selected topics in research and innovation. There will also be poster sessions and a student paper and poster competition.

## 2017 QNDE Deadlines

**Exhibitor Registration Due**

Monday, February 27

**QNDE Abstracts Due**

Friday, April 14

**Notification of Abstract Acceptance**

Friday May 12

**Early Conference Registration Deadline**

Monday, June 5

**Provo Marriott Rate Expires**

Thursday, June 22

**Manuscript Due**

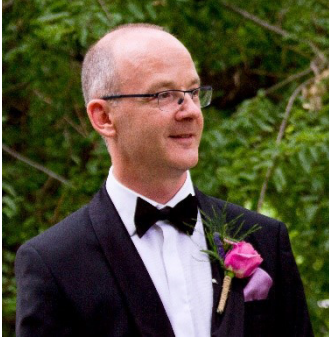
Tuesday, September 5

## QNDE Conference Highlights

- A comprehensive technical program is planned that consists of leading-edge keynote and plenary talks, technical sessions organized by research leaders in their specialty fields and contributed sessions.
- The Conference includes the 15th Annual Student Poster Competition, which is judged by a group of international NDE experts.
- The Conference serves as a forum and interface for both researchers (including students) and practicing NDE engineers and is recognized as a world-leading NDE conference.
- The Conference setting provides a friendly and conducive format for technical exchange between all concerned with NDE.
- The 5K Fun Run continues as an annual event that showcases a winning combination of competitiveness and collegiality.

# Keynote Speakers

## David Forsyth



### Experiences in Practicing the Assessment of Nondestructive Testing Performance

David Forsyth is a Principal Scientist and the Nondestructive Evaluation Division Manager with the Texas Research Institute/Austin (TRI).

Forsyth received his B. Eng. in Engineering Physics in 1990, and his M. Sc. in Electrical Engineering in 1992 from the University of Saskatchewan. In 1992, he joined the National Research Council Canada's Institute for Aerospace Research as a Research Officer. He worked on numerous programs of NDE development and NDE reliability validation for government and industrial clients, and was named a Senior Research Officer in 2003. He joined TRI/Austin in September of 2005, and manages a group of twelve scientists, engineers, and technicians dedicated to research in NDE development and applications.

Forsyth's areas of interest include the measurement of the reliability (POD) of NDE, and development of effective improvements to reliability. He has also worked on the development of new NDE methods and the implementation of structural health monitoring using NDE technologies. He has authored or co-authored over 30 refereed journal articles, over 120 articles in conference proceedings, 6 chapters in books, and has two patents pending on new sensors. In 2012, he was awarded The Technical Cooperation Program Achievement Award for project Model-Based Methods for Reducing Costs Associated with POD Studies.

## Nader Saffari



### Therapeutic Ultrasound – Exciting Applications and Future Challenges

Nader Saffari has a BSc in Electrical and Electronic Engineering from the University of Leeds UK, obtained an MSc in Microwaves and Modern Optics and was awarded his PhD in Ultrasonic Non-destructive Evaluation by University College London (UCL) in 1986.

After completing his studies, Saffari worked for six years as a consultant in the field of ultrasonic NDE for industrial clients. In 1992, he joined UCL as a member of academic staff and set up the Ultrasonics Group. For the next 14 years, he worked on developing novel ultrasonic measurement and analysis techniques for characterization of advanced engineering materials such as aerospace composites and was a frequent attendee at QNDE conferences. During this time, his group developed a strong theoretical modelling activity for ultrasound interaction with different defects in inhomogeneous media. In 2006, he made a complete sideways shift into the field of medical ultrasound.

Saffari is now Professor of Ultrasonics at UCL and his current research interests include high intensity focused ultrasound (HIFU) for the ablation of tumors, mathematical modelling of ultrasound propagation and scattering in inhomogeneous tissues, histotripsy for intrahepatic cell delivery, ultrasound mediated neuro-modulation, ultrasound mediated drug delivery, shear wave tumor detection in the prostate and sono-dynamic antibacterial blood cleansing. Saffari has over 130 research publications.

# Keynote Speakers Cont'd

## Bert VanderHeiden



### Transition to High Rate Aerospace NDI Processes

Bert VanderHeiden, Ph.D., is Vice President Military Segment of Orbital ATK's Aerospace Structures Division.

VanderHeiden directs the strategic planning for the Military programs within the division and ensures program execution and growth. This encompass aerospace programs such as the Lockheed Martin F-35 Lightning II and the Lockheed Martin F-22 Raptor.

Previously, VanderHeiden served as Vice President Engineering for the Aerospace Structures Division, and Vice President General Manager of Clearfield, Utah Site Operations. He joined Orbital ATK in 1985, and progressively worked his way up through R&D, Technology and Engineering organizations primarily in the Aerospace and Launch Divisions of Orbital ATK. He also assembled and led a new Technology and R&D group within Orbital ATK's Armaments Division.

VanderHeiden holds a Doctorate of Science degree in Physics from the University of Utah.

# What sets this conference apart?

## High-Quality Papers and Presentations

Each year, a large number of presentations are given by professionals distinguished in their fields. The special sessions, with embedded plenary speakers, feature internationally prominent researchers working on NDE disciplines that significantly impact the world in which we live. Participants are briefed on cutting-edge technologies emerging from and intersecting with their disciplines.

## Multidisciplinary Focus

This is the only conference designed to facilitate NDE disciplines and dialogue among members of government, industry, and the academic community.

## Exceptional Networking Opportunities

The conference provides extraordinary opportunities for discussions and collaborative dialogue with international NDE professionals. Professional exchanges, which often extend years beyond the week-long conference, benefit the participants, their organizational sponsors, industry, and the engineering and scientific professions.

## Author Development

The conference provides thorough and supportive paper reviews, relying on expert guidance from senior engineers and scientists with an opportunity for instructive interaction between author and reviewers.

## Conference Proceedings

A digital version of the conference abstracts is included in the registration package. The Conference Proceedings will include a hard bound volume of keynote and plenary keynote papers with the complete full color proceedings on a CD as well as open access on the AIP website.

## International Participation

The conference attracts a growing number of foreign participants. Representatives of 22 countries participated in the 2016 conference.

# Who should attend?

Consider attending if you have a professional interest in Nondestructive Evaluation Science and wish to:

**Present** results and insights from your own work.

**Interact** with colleagues who present papers in your field.

**Engage** with people and ideas across a broad spectrum of NDE technologies.

**Understand** how your organization might benefit by participating in QNDE Conference each year.

QNDE is registered with the National Academies to assist our International Participants.

International participants requiring Visa assistance are encouraged to visit:

<http://www.cbp.gov/travel/international-visitors>

For more information, contact Kay Williams:  
[kayw@iastate.edu](mailto:kayw@iastate.edu)

## Advisory Committee

**Addison, Bob** - Retired, Rockwell Scientific Co., USA  
**Alers, George** - EMAT Consulting, USA  
**Ayers, James** - Army Research Lab, USA  
**Balasubramaniam, Krishnan** - Indian Institute of Technology, Madras, INDIA  
**Bar-Cohen, Yoseph** - Jet Propulsion Lab, USA  
**Bond, Leonard J.** - Center for NDE, Iowa State University, USA  
**Bowler, Nicola** - Center for NDE, Iowa State University, USA  
**Brennan, Ray** - US Army Research Lab, USA  
**Calmon, Pierree** - NDE Department, CEA List, FRANCE  
**Cawley, Peter** - Imperial College, UNITED KINGDOM  
**Capobianco, Tom** - Bechtel Marine Propulsion Corporation, USA  
**Ewert, Uwe** - BAM Federal Institute for Materials Research and Technology, GERMANY  
**Han, Xiaoyan** - Wayne State University, USA  
**Hirse Korn, Sigrun** - Fraunhofer Institute for NDT, GERMANY  
**Jacobs, Laurence** - Georgia Institute of Technology, USA  
**Jiles, David** - Iowa State University, USA  
**Kanzler, Daniel** - BAM Berlin  
**Lasseigne, Angelique** - Colorado School of Mines, USA  
**Leckey, Cara** - National Aeronautics and Space Administration, Langley Research Center, USA  
**Levesque, Daniel** - National research Council of Canada  
**Lindgren, Eric** - Air Force Research Lab, USA  
**Lozev, Mark** - British Petroleum, USA  
**Meeker, Bill** - Iowa State University, USA  
**Michaels, Jennifer** - Georgia Institute of Technology, USA  
**Mueller, Christina** - BAM Berlin  
**Nagy, Peter** - University of Cincinnati, USA  
**Popovics, John** - University of Illinois, USA  
**Ramuhalli, Pradeep** - Pacific Northwest National Lab, USA  
**Rose, Joe** - Penn State University, USA  
**Schmerr, Les** - Center for NDE, Iowa State University, USA  
**Shokouhi, Parisa** - Pennsylvania State University, USA  
**Slotwinski, John** - Johns Hopkins University  
**Song, Sung-Jin** - Sungkyunkwan University, KOREA  
**Tittman, Bernhard** - Penn State University, USA  
**Udpa, Satish** - Michigan State University, USA  
**Zoughi, Reza** - Missouri University of Science and Technology, USA



## Submission of abstracts are sought

Verbal and poster sessions will emphasize basic science and early engineering developments in quantitative NDE and closely related technologies including materials characterization, process monitoring/control, advanced diagnostics, structural health monitoring, sensor development, and prognostics that utilize quantitative NDE techniques.

- Categories of the Review will include advances in:
- Fundamentals (theoretical and experimental confirmation) of all QNDE methods including generation and propagation of interrogating fields, field-flaw interaction.
- All signal processing techniques and applications to QNDE.
- Sensors, transducers, and probes for flaw detection, material property measurements, process control, long-term health monitoring, and security applications.
- New QNDE applications, techniques, instruments, and systems.
- QNDE for materials characterization (properties, microstructure, stress and texture, weldments and joined materials, corrosion, and other degradation mechanisms).
- QNDE for advanced materials (composites, electronic materials and devices, ceramics, and biological).
- NDE and NDT for Civil Infrastructure Systems and Civil Engineering Materials.
- Applications of QNDE in design, advanced manufacturing, and process monitoring and control.
- Structural health monitoring and prognostics, including smart materials applications.
- NDE/SHM of oil & gas structures
- Well-integrity evaluation and acoustic logging of formation properties
- Measurements confirming and/or computational solutions to established World Federation benchmark problems
- Other advances in QNDE and related topics.
- 15th Annual Student Poster Competition.

# Abstract and Paper Submission

# Poster Sessions

# Review of Progress in QNDE

## Abstract Format:

1. Session/topic area
2. Title
3. Authors with affiliations
4. Concise abstract that consists of:
  - 4a. Up to 1 page letter paper (8.5x11in)
  - 4b. 1 inch margins
  - 4c. 12 pt. Times New Roman
  - 4d. Single line spacing

**Note: Abstracts may include a picture or diagram**

Abstracts can include details to cited references and **should include an acknowledgement for funding source.**

**Submit as a word document or PDF**

**Abstracts are due Friday, April 14, 2017**

**Author(s) will be informed of acceptance by Friday, May 12, 2017.**

The submitted materials will be published in an electronic book of abstracts. The abstracts will be reviewed by a program committee.

With the acceptance of an abstract, the committee understands and expects that you will attend the conference and present your paper, as scheduled, and that you will also prepare and submit a manuscript to be reviewed and published in the Conference Proceedings.

QNDE 2017 will present poster session schedule that will allow extra time for viewing during breaks.

All posters will be displayed continuously from **3:10 p.m. on July 17 until 5:00 p.m. on July 20.**

Participants will have the opportunity to speak with presenters during the specified Poster Session as highlighted in the program.

**Poster size is limited to 36" x 48" in landscape or portrait orientation.**

## 15th Annual Student Poster Competition

Students should submit an abstract on a topic within the scope of the meeting and choose on the abstract submittal form (15th Annual Student Poster Competition.) Only one poster per student will be accepted, and the student must be the senior author AND the presenting author. The posters will be judged on:

1. Technical content and thoroughness of work
2. Quality of the poster materials and overall presentation
3. The student's mastery of the poster subject and her/his ability to defend it during judging.

**Student poster size will be limited to 36" x 48" (.91m x 1.22 m).**

A PDF of the completed poster must be **submitted electronically** through the QNDE Programs website by **5:00 pm CDT on July 7.**

The meeting proceedings will be published by the American Institute of Physics in a combination of a hardbound volume and an accompanying CD. Papers can be 10 pages in length.

For Abstract and Paper Submission, and with any questions, please contact the QNDE Office.

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**Registration Information**

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(515) 294-6222

**Abstract submission:**  
**[www.qndeprograms.org/abstracts](http://www.qndeprograms.org/abstracts)**

# Table Top Exhibition

The QNDE conference provides organizations involved in NDE the opportunity to highlight their organization to participants from around the world with a tabletop exhibition.

The QNDE community uses a wide range of equipment and software. This provides an excellent marketing venue to discuss new projects, showcase the latest products your organization has to offer, and exchange experiences. Located directly outside of the session rooms, your exposure to perfectly targeted clients (figure 1) will guarantee meaningful conversations.

All exhibit personnel must register individually as an attendee.

## Fees and Inclusions

- \$600 (in addition to a single professional registration which includes welcome reception, daily lunches, breaks and banquet dinner)
- a six foot display table (figure 2)



**Figure 1.** Exhibition display attracting interest from conference attendees



**Figure 2.** The display table is 6 feet in length and comes with a covered cloth and power. An extra power strip is available at an additional fee.

Targeted exhibitors include:

- instrumentation
- software
- publishers
- industry
- research entities
- developers
- other NDE/NDT agencies

Your organization will receive a dedicated slot in the following:

- The 2017 QNDE Program (full page)
- The online posting which will be available to over hundreds of individuals

There is **limited** space available. **Reserve now** for the best chance to receive a spot.

**Deadline: February 27**

For more information or to reserve a space visit:

[www.qndeprograms.org](http://www.qndeprograms.org)



# Marriott Hotel, Provo, Utah

## QNDE Standard Room:

\$154 plus applicable taxes per night (currently 12.5%), single/double occupancy.

[group rate for QNDE standard Room here](#)

## QNDE Student Standard Room

### Student ID required at check-in

\$134 plus applicable taxes per night (currently 12.5%), single/double occupancy.

**Please contact the hotel directly for this rate.**

## QNDE Per Diem/Government Room

### ID Required

Prevailing government rate plus applicable taxes per night (currently 12.5%), single/double occupancy; limited quantity in the block.

**Please contact the hotel directly for this rate.**

**Hotel Main Line: 801-377-4700**

**Reservations: 800-228-9290 or 801-377-4700**

A **credit card is required** to book a reservation. A booking confirmation will be sent via e-mail.

Registering with the **group rate** is the **only way** to secure the QNDE rate AND assists in fulfilling the room block commitment which allows QNDE to offer affordable conference registration fees.

- Check-in Time: 3:00pm
- Check-out Time: 12:00pm
- Shuttle Service to Provo Airport \$5

**Registration cancellation fee: \$100**  
**After June 30th, no refunds will be issued.**

# A Companion Opportunity

2017 QNDE offers a companion rate for this year. For a flexible cost, your companion can join you.

**Companions MUST register separately after registration of the professional or student.**

## Package 1: \$70

Includes the Sunday Evening Welcome Reception with beverage tickets and the Tuesday Evening Banquet.

## Package 2: \$150

Allows your companion to be able to join you for Breakfast each day.

## Package 3: \$250

Includes all of the above as well as lunch which will be available each day, Monday through Thursday.

# Student Group Registration

A special fee of \$425 per student is offered for student groups of **five (5)** or more who preregister as a group **no later than June 5, 2017**.

**Registrations must be received together and include proof of student status will be requested onsite at check-in.** Name substitutions, prior to arrival at the conference site, will be allowed as long as the group remains five or more students.

Student group registration fees include:

- Sunday welcome reception
- Breakfast and lunches
- Tuesday conference banquet
- Daily breaks.

Student registration fee **does not include** the Conference Proceedings or the Journal for NDE.

# The Bruce Thompson Memorial 5K

The 2017 QNDE Bruce Thompson 5K Fun Run will be held the evening of Thursday, July 20.

Participants will enjoy a route on the Provo River Parkway Trail that runs within Provo Canyon. The course route can be found on the QNDE website and located at the following link:

[Provo River Parkway Trail](#)

Maps will be available the day of the Run. Preorder your T-shirts (\$25) when you register online.



## Additional Information

### Hotel Address:

**101 West 100 North, Provo, Utah 84601, USA**

- Shuttle service to Provo Airport: \$5
- Shuttle service to Salt Lake City Airport provided

<https://www.qndeprograms.org/location/>



# Registration

Reg Fee Category	Early Rate	Late Rate	Onsite	Premium if not staying at Provo Marriott
<b>Professional Rates</b>	Before June 5, 2017	June 6-July 10, 2017	After July 10, 2017	
QNDE Conference Registration	\$795.00	\$995.00	\$1,145.00	\$400.00
World Federation of NDE Centers Short Course	\$775.00	\$775.00	\$925.00	\$400.00
QNDE Conference Registration <b>AND</b> World Federation of NDE Centers Short Course	\$1,170.00	\$1,370.00	\$1,520.00	\$400.00
<b>Student Rates</b>				
QNDE Conference Registration	\$475.00	\$575.00	\$725.00	\$400.00
World Federation of NDE Centers Short Course	\$775.00	\$775.00	\$925.00	\$400.00
QNDE Conference Registration <b>AND</b> World Federation of NDE Centers Short Course	\$850.00	\$950.00	\$1,100.00	\$400.00
QNDE Conference Group Fee per person* (groups of 5 or more; must register in one order)	\$425.00	\$525.00	\$675.00	\$400.00
<b>Companion Rates</b>				
Companion Package #1 (Sunday Welcome Reception & Tuesday Dinner Banquet)	\$70.00	\$100.00	\$125.00	
Companion Package #2 (Sunday Welcome Reception, Tuesday Dinner Banquet, & daily breakfast)	\$150.00	\$175.00	\$200.00	
Companion Package #3 (Sunday Welcome Reception, Tuesday Dinner Banquet, daily breakfast, & daily lunch)	\$250.00	\$275.00	\$300.00	
<b>Other</b>				
Guest Banquet Ticket	\$50.00	\$55.00	n/a	
Guest Banquet Ticket-child	\$20.00	\$25.00	n/a	
Guest Welcome Reception Ticket	\$20.00	\$25.00	n/a	
5K Fun Run Tshirt (S-XL)	\$25.00	n/a	n/a	

Premium amount:

+ \$200

+ \$150

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**IOWA STATE UNIVERSITY**  
Center for Nondestructive Evaluation

World Federation  
of  
NDE  
Centers



**UIA**  
ultrasonic  
industry  
association  
powering sound ideas