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**'Smart' solutions for human skin, bridge testing and more are in largest-ever SPIE Smart Structures/NDE program****10 February 2011**[Conference week update: See the event photo gallery.](#)

BELLINGHAM, Washington, USA -- Smart structures that emulate human muscles and skin and nondestructive testing of bridges and airline cargo will be among advances presented at an international conference in San Diego, California, next month.

The presentations are among a record-breaking 900-plus papers scheduled for the annual [SPIE Smart Structures and Materials + Nondestructive Evaluation \(NDE\) and Health Monitoring](#) conference at the Town and Country Resort and Convention Center 6-10 March.

Conferences in electro-active polymers, bio-inspired technology, nondestructive monitoring, and other topics will cover research in adaptive structures and mechanisms, smart sensors, NDE, civil infrastructure, aerospace systems, energy harvesting, and more.

The perennially popular [demonstration session](#) in the Electroactive Polymer Actuators and Devices (EAPAD) conference chaired by Yoseph Bar-Cohen (Jet Propulsion Lab) will include a special focus this year on haptic and Braille technologies. Eight demonstrations from five countries will be shown.

Also in the EAPAD conference, Thomas Sugar (Arizona State Univ.) will introduce a new generation of powered prosthetic devices in a keynote presentation on "Walking with springs." The device is being developed at the university's Human and Machine Integration Lab, and uses a robotic tendon to store and release energy during the gait cycle.

A biomimicry workshop featuring a live alligator from the San Diego Zoo will be part of the Bioinspiration, Biomimetics, and Bioreplication conference, chaired by Raúl Martín-Palma (Univ. Autónoma de Madrid).

Nearly 140 papers are scheduled for the conference on Nondestructive Characterization for Composite Materials, Aerospace Engineering, Civil Infrastructure, and Homeland Security, chaired by Felix Wu (NIST). Among presenters is Daniel Inman (Virginia Polytechnic Institute and State Univ.), whose team's work with flexible piezoelectric devices was featured in the recent NOVA "[Making Stuff: Smarter](#)" episode on PBS.

Eric Lindgren (Air Force Research Lab) will give a funding-agency talk, on "Future Research Needs and Challenges in NDE and in situ NDE."

Approximately 20 exhibiting companies will show the latest developments in smart structures and materials products, infrastructure and research systems, and modeling applications equipment in a [focused technical exhibition](#). Admission is free.

Plenary talks will include:

- Eric Ruggiero (GE Global Research): Advanced Sealing Technology for the Energy and Propulsion Fields
- Joseph Rose (Pennsylvania State Univ.): The Upcoming Revolution in Ultrasonic Guided Waves

Smart Structures and Materials and Nondestructive Evaluation

- Alison Flatau (Univ. of Maryland, College Park): Structural Magnetostrictive Alloys: An Introduction to a New Class of Transducer Materials
- Randolph Hanke (Univ. Würzburg): Micro Computed Tomography: Towards Nanoscale Imaging
- Valerio Carli (Fraunhofer Gesellschaft): The European Project 'Clean Sky', " with insights into the platform "Green Regional Aircraft.

Among awards to be presented at the meeting, Wolfgang Ecke (IPHT, Jena) will be recognized as a new Fellow of SPIE. The 2011 Smart Structures and Materials Lifetime Achievement Award will be presented to Amr Baz (Univ. of Maryland, College Park) and Kon-Weil Wang (Univ. of Michigan). The 2011 NDE Lifetime Achievement Award will be presented to Joseph Rose (Pennsylvania State Univ.). Winners of a Best Student Paper Contest will be announced.

Accepted papers will be published in the [SPIE Digital Library](#) as soon as approved after the meeting, and in print volumes and digital collections. The SPIE Digital Library is the world's largest collection of optics and photonics literature, and a leading resource for scientific and patent research.

[SPIE](#), the international society for optics and photonics, was founded in 1955 to advance light-based technologies. Serving more than 180,000 constituents from 168 countries, the Society advances emerging technologies through interdisciplinary information exchange, continuing education, publications, patent precedent and career and professional growth. SPIE annually organizes and sponsors approximately 25 major technical forums, exhibitions and education programs in North America, Europe, Asia and the South Pacific, and supports scholarships, grants and other education programs around the world.

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