



# ASIP

2 0 1 3

BONITA SPRINGS, FLORIDA

DECEMBER 3-5, 2013

DECEMBER 3-5, 2013

THE AIRCRAFT STRUCTURAL INTEGRITY  
PROGRAM CONFERENCE

F I N A L P R O G R A M



## THE AIRCRAFT STRUCTURAL INTEGRITY PROGRAM CONFERENCE

# WELCOME TO ASIP

The 2013 Aircraft Structural Integrity Program (ASIP) Conference is specifically designed to bring together the world leaders in the area of aircraft structural integrity and to disseminate information on state-of-the-art technologies for aircraft structures in both the military and civilian fleets. This is the 29th year of the ASIP Conference in its current format, although similar meetings occurred in the 1970s. This year also marks the 55th anniversary of the publication of the initial requirements for the US Air Force's Aircraft Structural Integrity Program.

ASIP 2013 will continue to provide a forum for the technical interchange of information between personnel responsible for structural integrity, including design, analysis, testing, manufacture, certification, non-destructive evaluation/inspection, maintenance, repair, safety, risk assessment and mitigation, durability and life management. This interchange helps provide the communication necessary to ensure that each community is aware of each other's capabilities and needs. The ASIP Conference has become even more important to the Air Force, Navy, Army, NASA and the FAA due to the constantly growing emphasis on sustaining the airworthiness of aging aircraft.

## ABOUT BONITA SPRINGS

Lee County Florida sits along the southwest coast of Florida with over 50 miles of beaches between Boca Grande and Bonita Springs. In this span of over 803 miles there are a wide range of activities for any visitor. From walking trails to kayak trails, to baseball and swimming to shopping and relaxing.

## THE FREE SHUTTLE SERVICE

The Hyatt Regency is offering the ASIP Conference attendees one (1) free nightly shuttle service to the Outdoor Mall for extra dining options. The pick up times are listed below. If you cannot meet the shuttle pick up times listed below you must make your own travel arrangements.

<b>Monday:</b>	Leave Hotel @ <b>6:00 PM</b>	Return to Hotel @ <b>9:00 PM</b>
<b>Tuesday:</b>	Leave Hotel @ <b>7:30 PM</b>	Return to Hotel @ <b>9:30 PM</b>
<b>Wednesday:</b>	Leave Hotel @ <b>6:00 PM</b>	Return to Hotel @ <b>9:00 PM</b>
<b>Thursday:</b>	Leave Hotel @ <b>6:00 PM</b>	Return to Hotel @ <b>9:00 PM</b>

# THE HYATT REGENCY

**Hotel Address:**

The Hyatt Regency Coconut Point Hotel  
5001 Coconut Road  
Bonita Springs, Florida 34134

Tel: 239-444-1234

Experience a Bonita Springs hotel like no other; Hyatt Regency Coconut Point. Located on 26 acres overlooking breathtaking Estero Bay Aquatic Preserve, our enticing Bonita Springs, Florida hotel – recently honored with Florida Green Lodging’s Three Palm eco-friendly certification – offers limitless recreation, personalized service and attention to detail at every turn.

Photo of The Hyatt Regency Coconut Point Hotel



## AIRPORT & TRANSPORTATION

**Airport Address:**

Southwest Florida International Airport (RSW)  
11000 Terminal Access Road, Suite 8671  
Fort Myers, Florida 33913-8213

**General Airport Information:**

239-590-4800

**For Transportation Info Visit:**

[www.asipcon.com/pages/hotel.html](http://www.asipcon.com/pages/hotel.html)

[www.flylcpa.com/transportation/](http://www.flylcpa.com/transportation/)

## CONTENTS

ASIP Introduction

About Bonita Springs

Hotel Information

Airport Information

2013 Featured Speakers

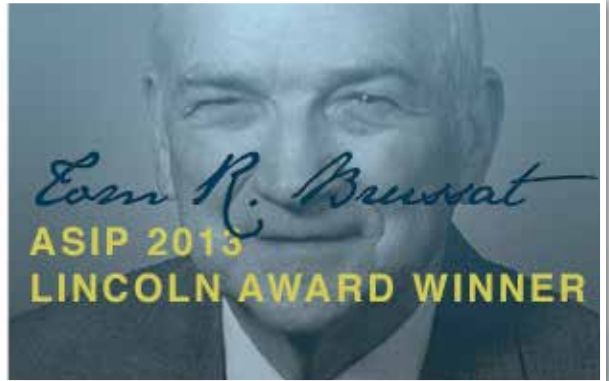
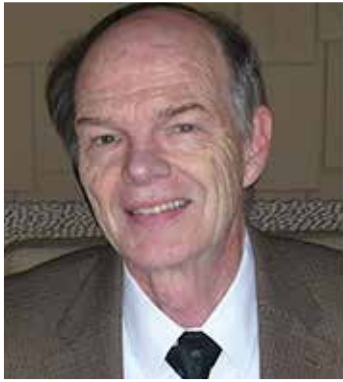
2013 Agenda

2013 Exhibitor Map

2013 Exhibitors



## FEATURED SPEAKERS



### **Dr. Thomas R. Brussat** **Lincoln Award Winner**

#### **Thomas R. Brussat, PhD, Consultant, Tom Brussat Engineering, LLC**

Dr. Thomas Brussat has dedicated 47 years to the development and application of durability and damage tolerance technology to Aircraft Structural Integrity. Leading up to his retirement from Lockheed Martin Aeronautics Company in 2008, he served 21 years as the Contractor Team Lead for durability and damage tolerance for the F-22 “Raptor,” covering all phases of its ASIP program, from initial design requirements and design analysis, through full-scale testing, to the implementation of its 21st-century force management program.

For the preceding two decades at Lockheed, from 1966 to 1986, Tom was engaged in cutting-edge research supporting the initial development of damage tolerance methodology and criteria. During those years he was principal investigator of U. S. Air Force and Navy research contracts dealing with fatigue crack growth analysis methods and ASIP requirements.

Since retiring from Lockheed, he has continued to support ASIP as a private consultant. Expanding his expertise into the area of structural risk and reliability analysis, he co-authored the 2010 USAF Aircraft Structural Risk & Reliability Analysis Handbook draft, co-developed an update of the C-5A aft crown risk analysis, and proposed several significant advances in risk analysis methodology at the 2012 ASIP Conference.

Since 1976, Dr. Brussat has taught Fatigue Crack Growth Analysis in an annual UCLA engineering short course, “Structural Integrity for New and Aging Metallic Aircraft.” He has published or presented numerous technical papers on fracture mechanics, crack growth analysis, and risk analysis. After receiving his BS and MS degrees at the University of Wisconsin and California Institute of Technology, respectively, he earned his PHD from UCLA in 1973.

## **Mr. Loris Molent** **Tuesday Speaker**

Mr. Loris Molent, Principal Research Scientist: EL2 S&T7, Head, Emerging Aircraft Structural Integrity, Defence Science & Technology Organization

Mr. Loris Molent graduated in 1983 with a Bachelor of Engineering (Aeronautical) from the Royal Melbourne Institute of Technology. He commenced employment at the then Aeronautical Research Laboratories in 1984, and has worked in the fields of aircraft structural integrity, structural mechanics, structural & fatigue testing, advanced bonded repair, aircraft vulnerability & aircraft accident investigation.

He has over 200 publications in these technical areas and is a qualified aircraft accident investigator. He has been attached to both the then Civil Aviation Department (1985) and the US Navy (NAVAIR, 1990-1991) in Washington D.C. as an airworthiness engineer. In 1997 Mr. Molent's research work was assessed as the equivalent to a PhD and was promoted to Senior Research Scientist. In 1998 he went on to complete a certificate in Scientific Leadership.

Mr. Molent is currently the Defence Science and Technology Organisation's Head of Structural Integrity Combat & Trainer Aircraft. Loris is also an accomplished, as well as entertaining, public speaker in his technical areas of expertise. He is married to Catherine and has two children (Natasha and Alexander) and lives happily in Melbourne Australia.



## **Dr. Anders Blom** **Wednesday Speaker**

Dr. Anders Blom, Research Director, Swedish Defence Research Agency (FOI), Member of the Royal Swedish Academy of Engineering Sciences

Anders Blom has over 30 years of experience in aeronautical R&D. He has written over 100 papers on fatigue and fracture, fibre composites, non-linear finite element analysis, structural and materials testing, damage tolerance and durability of aircraft structures, etc. He made his Ph.D. (1984) and D.Sc. (1985) in Lightweight Structures at the Royal Institute of Technology (KTH) in Stockholm where he was also adjunct professor 1987-1996.

He is a technical expert in EDA Cap Tech CAP TECH ESM02 (Air Systems and their Environment). He is the chairman of the steering committee for the International Fatigue Series and is the General Secretary for ICAF (International Committee on Aeronautical Fatigue and Structural Integrity). He has participated in Swedish National Research Agenda for Aeronautics, 2009-2010 and Swedish National Research and Innovation Agenda for Aeronautics, 2012-2013. He chaired the evaluation of the Swedish National Aeronautical research Programme 2013-2016. Anders has received a number of awards for his research in aeronautics including the Swedish Thulin medal.





## MONDAY, DECEMBER 2

4:30 PM –  
6:30 PM

**EARLY ONSITE REGISTRATION & CONFERENCE CHECK-IN**

## TUESDAY, DECEMBER 3

7:00 AM

**REGISTRATION/CONTINENTAL BREAKFAST**

8:00 AM

**WELCOME REMARKS/LINCOLN PRESENTATION AND AWARD**

8:00 AM

**Welcome and Lincoln Presentation**

*Dr Thomas Brussat - Tom Brussat Engineering LLC*

9:15 AM

**BREAK**

9:45 AM

**SESSION 1: OVERVIEWS I**

*Dr Ravinder Chona - USAF AFRL*

9:45 AM

**B-1 Full Scale Fatigue Test**

*Mr Gerard Bohr - The Boeing Co*

10:15 AM

**Equivalent Flight Hours Development for USAF HH60G**

*Mr Gregory Wood - Mercer Engineering Research Ctr*

10:45 AM

**New Maintenance System for PZL130 ORLIK Structure Based on Full Scale Fatigue Test Results**

*Mr Marcin Kurdelski - Polish Air Force Institute of Technology*

11:15 AM

**E-6B SLEP Fatigue Analysis and Test Program**

*Mr Richard Leist - Boeing Corp*

**11:45 AM      GROUP LUNCHEON WITH LUNCHEON SPEAKER**

12:15 PM      **Effect of Pitting Corrosion on Structural Integrity: Some Case Studies**  
*Mr Loris Molent - Defence Science & Technology Organization*

**1:30 PM      SESSION 2: LIFE ENHANCEMENT CONCEPTS I**

*Mr Mark DeFazio - AFLCMC/EZFS*

1:30 PM      **Modeling Fatigue Failure from Cold-Worked Fastener Holes**  
*Dr Thomas Mills - APES Inc*

2:00 PM      **Computation of Stress Intensity Factors for Cracks in Cold-Worked Holes**  
*Dr Ricardo Actis - Engineering Software Research & Development Inc*

2:30 PM      **Residual Stresses from Cold Working of Aircraft Fastener Holes**  
*Dr Adrian DeWald - Hill Engineering LLC*

**3:00 PM      BREAK**

**3:30 PM      SESSION 3: CHARACTERIZATION, MODELING & TESTING I**

*Dr John Bakuckas - FAA*

3:30 PM      **F-16 ASIP Data Capture: The Missing Link in IAT Evolution**  
*Dr Kimberli Jones - USAF*

4:00 PM      **Bird Strike and Coupon Testing of B2 Polycarbonate Windshields Exhibiting Usage Induced Craze Cracks**  
*Mr Jeffrey Simmons - Northrop Grumman Corp*

4:30 PM      **AC130W Stinger II Gun Port Seal Loading and Structural Design**  
*Dr Robert McGinty - Mercer Engineering Research Ctr*

**5:00 PM – 7:00 PM      WELCOME RECEPTION IN THE EXHIBIT HALL**

**5:00 PM – 7:00 PM      POSTER PRESENTATIONS IN EXHIBIT HALL**



**ASIP**  
2013

## THE AIRCRAFT STRUCTURAL INTEGRITY PROGRAM CONFERENCE

# WEDNESDAY, DECEMBER 4

**7:00 AM**      **REGISTRATION/CONTINENTAL BREAKFAST**

**8:00 AM**      **SESSION 4: OVERVIEWS II**  
*Mr Robert Norcross - USAF*

**8:00 AM**      **P-8A Poseidon Full Scale Fatigue Test**  
*Mr Jude Restis - The Boeing Co*

**8:30 AM**      **Full Scale Fatigue Test of FA18 AD Composite Structure for Aging Evaluation**  
*Dr Waruna Seneviratne - National Institute for Aviation Research/WSU*

**9:00 AM**      **Verification of Analytical Methodology to Minimize Inspection Burdens and to Utilize Full Benefits of Residual Stress Life Enhancement Technique**  
*Ms Hongmei Cai - The Boeing Co*

**9:30 AM**      **BREAK**

**10:00 AM**      **SESSION 5: PROGNOSTICS & RISK ANALYSIS**  
*Mr Michael Bouchard - UDRI*

**10:00 AM**      **Time-to-Failure Probability Distribution Estimate Using Monte Carlo Simulation**  
*Dr Eric Tuegel - USAF*

**10:30 AM**      **Application of Structural Risk Analysis to Force Management and Force Structure Planning**  
*Mr Kevin Welch - Lockheed Martin Co*

**11:00 AM**      **An Innovative Low Maintenance Data Acquisition Solution for Load Factor Capture**  
*Mr Hyong Yi - ACRA Control*

**11:30 AM**      **Modeling Repairs in Structural Risk and Reliability Assessments**  
*Dr Eric Tuegel - USAF*



**12:00 PM      GROUP LUNCHEON WITH LUNCHEON SPEAKER**

12:30 PM      **Luncheon Presentation: International Committee on Aeronautical Fatigue and Structural Integrity (ICAF) – Past Achievements, Current Activities, and Future Challenges**  
*Dr Anders Blom - Aeronautical Res Lab*

**1:45 PM      SESSION 6: REPAIR/REPLACEMENT CONCEPTS**  
*Mr Robert Burt - Lockheed Martin Co*

1:45 PM      **Material Product Form and Process Substitution Guidelines for Metallic Components**  
*Dr Lawrence Butkus - USAF*

2:15 PM      **Aluminum Alloy Substitution for Modernizing the Aging Fleet**  
*Mr Donald Shrader - Alcoa Defense*  
*Mr Frank Shoup - Alcoa Defense*

2:45 PM      **Using Virtual Strain Gauges to Correlate with Bending and Torsion Measured on a Helicopter Tail Cone Using Strain Gauges**  
*Mr Erik Ostergaard - HBM nCode*

**3:15 PM      BREAK**

**3:45 PM      SESSION 7: CHARACTERIZATION, MODELING & TESTING II**  
*Dr Jeff Calcaterra - USAF AFRL*

3:45 PM      **F-16 Block 50 Full-Scale-Durability Test Correlation and Test Findings**  
*Mr Keith Sundstrom - Lockheed Martin Co*

4:15 PM      **Fatigue Crack Growth Tests and Analyses on 7249-T76511 Aluminum Alloy Specimens under Constant Amplitude and Simulated Aircraft Wing Loading**  
*Dr James Newman - Mississippi State University*

4:45 PM      **Analysis of the Interaction Coalescence and Propagation Directions of Two Parallel Surface Cracks**  
*Ms Jeeyeon Hahn - Purdue University*



# THURSDAY, DECEMBER 5

- 7:00 AM**      **REGISTRATION/CONTINENTAL BREAKFAST**
- 8:00 AM**      **SESSION 8: LIFE ENHANCEMENT CONCEPTS II**  
*Dr James Greer - HQ USAFA/DFEM*
- 8:00 AM      **Hole Cold Expansion in the Presence of Existing Cracks**  
*Mr Len Reid - Fatigue Technology Inc*
- 8:30 AM      **Cold Expansion Effects on Cracked Fastener Holes Under Constant Amplitude and Spectrum Loading in the 2024-T351 Aluminum Alloy**  
*Mr Jacob Warner - USAF*
- 9:00 AM      **Laser Peening for Improved Fatigue Strength and Lifetime for a Wing Attachment Shear Tie**  
*Ms Tracy Racanelli - Metal Improvement Co*  
*Dr Thomas Mills - APES Inc*
- 9:30 AM**      **BREAK**
- 10:00 AM**      **SESSION 9: NONDESTRUCTIVE INSPECTION/EVALUATION**  
*Dr Mark Thomsen - USAF*
- 10:00 AM      **Missed Cracks and Risk If You Think NDI is Flawless You May Be Missing the Point**  
*Mr David Campbell - USAF*
- 10:30 AM      **Choosing the Correct Detection Limit a9095 for Ensuring Crack Tolerance Subsequent to a Required Damage Tolerance Inspection**  
*Dr Joseph Gallagher - Consultant*
- 11:00 AM      **Improving ASIP Analysis Using Structural Data Visualization Organization and Archival Techniques**  
*Capt Gary Steffes - USAF*  
*Mr Shane Paredes - NAVAIR*

11:30 AM **OPEN LUNCH**

1:30 PM **SESSION 10: STRUCTURAL HEALTH MONITORING**

*Ms Mary Schleider - Mercer Engineering & Research Ctr*

1:30 PM **The State of Nondestructive Evaluation and Structural Health Monitoring**  
*Dr Eric Lindgren - USAF*

2:00 PM **SHM System Readiness for Damage Detection on Aging Aircraft**  
*Dr Amrita Kumar - Acellent Technologies Inc*

2:30 PM **Quality Assurance and Bondline Strain Measurement of Patch Repairs Using Fiber Optic Strain Sensors and Digital Image Correlation**  
*Dr Waruna Seneviratne - National Institute for Aviation Research/WSU*

3:00 PM **BREAK**

3:30 PM **SESSION 11: CHARACTERIZATION, MODELING & TESTING III**

*Mr Darren Fritz - USAF WR-ALC*

3:30 PM **Durability and Damage Evaluation of Tolerance Rivetless Nut Plates Installed in Short Edge Margin Conditions**  
*Ms Joy Ransom - Fatigue Technology Inc*

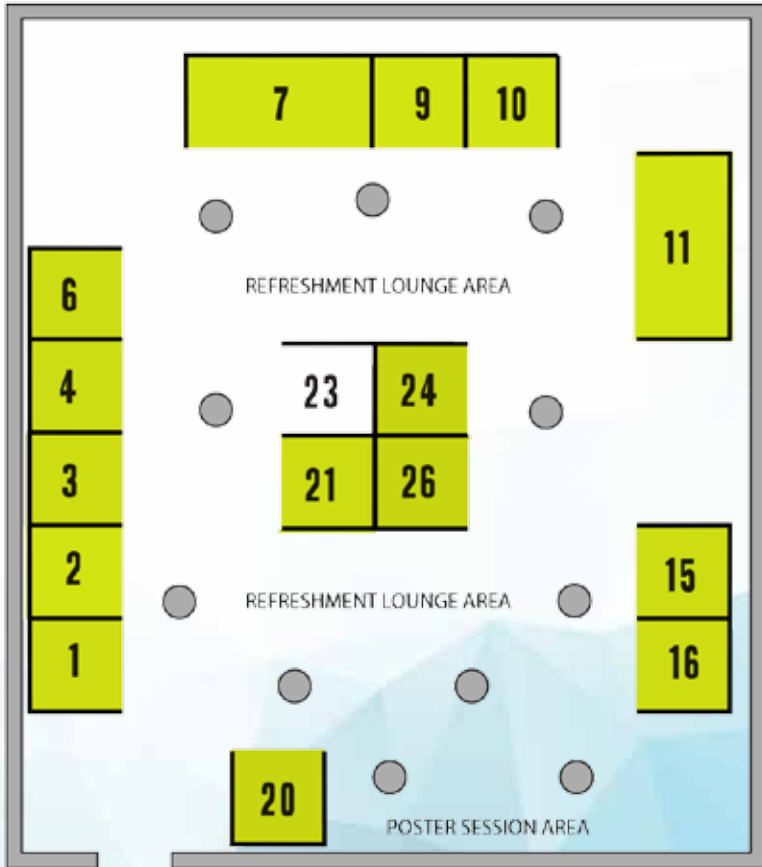
4:00 PM **Effects of Spectra and Stress Magnitude on Crack Growth Behavior Variability for Typical Manufacturing Defects**  
*Mr Loris Molent - Defence Science & Technology Organization*

4:30 PM **Ti-6Al-4V Small Crack Growth Effect on Damage Tolerance Analysis**  
*Mr Peter Caruso - Lockheed Martin Co*

5:00 PM **CONFERENCE ADJOURNS**



## 2013 EXHIBITORS



ENTRANCE

**ASIP WOULD LIKE TO THANK ALL OF  
OUR EXHIBITORS!**

IF YOUR COMPANY IS INTERESTED IN EXHIBITING  
OR SPONSORING AT THE ASIP CONFERENCE, PLEASE  
VISIT US AT THE REGISTRATION DESK.



**Av-DEC**

1810 MONY STREET  
FORT WORTH, TX 76102  
(817)738-9161

**Mr Don Davis**

don@avdec.com  
www.avdec.com

**BOOTH #**  
**20**

Av-DEC is a technical design and manufacturing company based in Fort Worth, Texas serving customers worldwide. Founded by engineers, Av-DEC is highly focused on corrosion prevention in the aerospace industry. Av-DEC has products that are currently in use solving a wide variety of corrosion problems with Non-Hazardous Polyurethane based products on commercial and military aircraft. Our products are accepted and approved by major OEM's, major Airlines, Regional Airlines, BizJets, General Aviation, Helicopter operators and various branches of the Military (US and foreign). Specific areas of focus for corrosion prevention: • Aircraft to Antenna Mating Surfaces • Aircraft Structural Areas • Wire Harness & Interconnects

**ESRD AFGROW**

111 WEST PORT PLAZA  
ST. LOUIS, MO 63146  
(314)744-8087

**Mr Brent Lancaster**

brent.lancaster@esrd.com  
www.esrd.com



**BOOTH #**  
**16**

ESRD is the developer of StressCheck Professional, an advanced FEA software tool offering unique quality and reliability technology to assess structural integrity, and the StressCheck Handbook, a new paradigm for standardization that supports simulation governance. StressCheck's competitive advantages include fracture mechanics, fastened joints, contact, nonlinear, ply-by-ply composites, parameterized handbook solutions, and support for API integration with other software tools. LexTech develops, maintains, and supports AFGROW (an LEFM based crack growth life prediction program). AFGROW's flexible analysis framework, automation capabilities, and user friendly interface have made it one of the world's most popular life prediction programs.



**FATIGUE TECHNOLOGY**

A PCC Company

**Fatigue Technology**

401 ANDOVER PARK EAST  
SEATTLE, WA 98188  
(206)246-2010

**Mr Len Reid**

marketing@fatiguetech.com  
www.fatiguetech.com

**BOOTH #**  
**7**

Fatigue Technology (FTI) pioneered cold expansion technology over 40 years ago and has advanced this science to develop innovative solutions for bushing installations, fastener applications and aerospace fitting and hardware installations. FTI products improve aircraft structural durability and reduce manufacturing and maintenance flow-time and costs in metal and composite applications.



### General Electrodynamics Corporation

8000 CALENDER RD.  
ARLINGTON, TX 76001  
(817)572-0366

**Mr Harold Thomas**  
hthomas@gecscales.com  
www.gecscales.com

BOOTH #  
**3**

Aircraft Fatigue Monitoring System (AFMS). Comprised of - On Board Sensors (strain sensor/gauges, accelerometers, flight parameters, including altitude, attitude, airspeed, fuel, weight). Data Acquisition System (multi-channel input to record data from sensors at user specified sample rate with data stored in memory). Data Analysis - PC tablet connectivity to DAQ, fatigue analysis, safe life/damage tolerance limits, crack growth characteristics. Post Analysis with individual aircraft tracking, fleet management/maintenance.

**nCode**®   
...an HBM brand

### HBM-nCode

26555 EVERGREEN ROAD  
SOUTHFIELD, MI 48076  
(425)445-9093

**Ms Melissa Shkerich**  
info@hbmncode.com  
www.ncode.com

BOOTH #  
**15**

nCode software and solutions are provided by HBM, a world-wide technology and market leader, offering products and services across the entire measurement spectrum, from virtual to physical. HBM-nCode has over 30 years' experience focusing solely on fatigue and durability solutions which span both test and analysis. Its technologies help customers understand product performance, accelerate product development and improve design. HBM-nCode enables Aerospace customers to perform structural integrity and durability analysis, accelerated testing, Operational Loads Monitoring (OLM), Health & Usage Monitoring (HUMS), and seamlessly share and distribute valuable test data. Visit [www.ncode.com](http://www.ncode.com) for more information.



### IMTT

9769 W. 119 DR, SUITE 27  
BROOMFIELD, CO 80021  
(303)554-8000

**Mr Changhong Sun**  
changhongsun@msn.com  
www.imtt-usa.com

BOOTH #  
**24**

As a pioneer in revolutionary RFEC technology, IMTT continue to innovate in the field of NDT equipment's R&D, covering all areas including probe, scanner and instrument design and manufacturing. Today, IMTT carries a broad spectrum of NDT tools to provide a complete NDT solution for some of the most challenging NDT tasks.

**KAMATICS**RWG  
Engineered Performance

**Kamatix RWG**  
1330 BLUE HILLS AVENUE  
BLOOMFIELD, CT 06002  
(860)243-9704

**Mr John Bertolini**  
john.bertolini@kaman.com  
www.kaman.com

**BOOTH #**  
**21**

KAMATICS Corporation designs and manufactures high-performance mechanical products used in the aviation, marine, hydropower and other industries. These products primarily consist of the KAron™ self-lubricating bearings used for aircraft flight control, landing gear and turbine engines applications, as well as the KAflex™ & Tufflex™ driveline couplings for helicopter power transmission.



**Laser Technology Inc**  
1055 W GERMANTOWN PK  
NORRISTOWN, PA 19403  
(610)631-5043

**Mr Flynn Spears**  
cdiltow@laserndt.com; fspears@laserndt.com  
www.laserndt.com

**BOOTH #**  
**1**

Shearography NDT: Laser Technology Inc. (LTI) is the world leader for shearography nondestructive testing systems, instruments and training. LTI offers a full line of shearography NDT products from portable NDT instruments through large production systems. Shearography provides ultra-high speed inspection of composites, metal bonded structures, honeycomb and foam cored panels and COPV. LTI provides training to ASNT SNT-TC1A Level 2 & 3 Shearography.

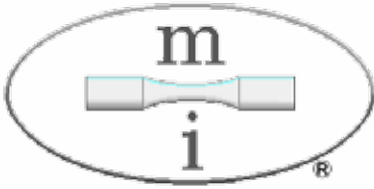
**LUNA**  
DEFYING IMPOSSIBLE.

**Luna**  
1 RIVERSIDE CIRCLE, SUITE 400  
ROANOKE, VA 24018  
(540)769-8465

**Ms Allison Woody**  
woodya@lunainc.com  
www.lunainc.com

**BOOTH #**  
**4**

ODiSI B (Optical Distributed Sensor Interrogator) Luna's ODiSI-B saves time and cost while adding a new dimension to sensing measurements with its unprecedented spatial resolution. Using swept-wavelength interferometry, the ODiSI interrogates thousands of sensing locations on a single optical fiber simultaneously. Reduce cost and better characterize your system by instrumenting many sensing locations with a single, inexpensive optical fiber. With sensors suitable for surface bonding or embedding in composites, this technology can accomplish your objectives either by direct integration during manufacturing or later installation. Applications: • Load, fatigue, and mechanical testing • Manufacturing, engineering, and design verification • Embedded sensing • Structural Health Monitoring • Model and simulation validation Specifications: • 100 Hz acquisition over entire fiber • 25 Hz active display over 1 meter • Acquisition over 10 meter sensing range • 5mm spatial resolution

**Metal Improvement Company**

1715 WESTLYNN  
WICHITA, KS 67212  
(316)204-1076

**Mr James Harrison**

james.harrison@cwst.com  
[www.metalimprovement.com](http://www.metalimprovement.com)

**BOOTH #****9**

Metal Improvement Company, a subsidiary of Curtiss-Wright Corporation provides laser peening, shot peening, coatings, and metallurgical testing services that enhance the performance and extend the life of metallic components. Our laser peening and shot peening services protect components against failure mechanisms such as fatigue, fretting fatigue and stress corrosion cracking. Our coating services division is a pioneer and leader in the development and application of thermal spray coatings and solid film lubricant coatings. Metal Improvement currently operates a network of 70 job shop facilities in North America, Europe and Asia.

**PaR Systems NDT Services**

707 COUNTY ROAD E WEST  
SHOREVIEW, MN 55126  
(651)484-7261

**Tony Corak**

tcorak@par.com  
[www.par.com/non-destructive-testing/non-destructive-testing-services/](http://www.par.com/non-destructive-testing/non-destructive-testing-services/)

**BOOTH #****26**

PaR Systems signed a partnership agreement with NASA to use its Hangar N facility on the Cape Canaveral Air Force Station, Florida, and the unique non-destructive testing (NDT) equipment in April 2013. PaR's NDT Services group immediately began work performing NDT and other related aerospace product services. Inspection capabilities include multiple x-ray modalities such as Digital and Computed Radiography, Backscatter, and Computed Tomography along with Laser Shearography, Infrared, Ultrasonic, Eddy Current, Magnetic Particle, and Liquid Penetrant. The ability to understand how and when to apply the technology is the cornerstone of what PaR's Level III Development and Operational Engineers provide. This expertise allows PaR to quickly and accurately assess the best NDT solution for clients' needs through applied engineering. The facility can inspect large structures as well as small commercial and aerospace parts. [www.par.com/non-destructive-testing/non-destructive-testing-services](http://www.par.com/non-destructive-testing/non-destructive-testing-services)





**Proto Manufacturing Inc.**

12350 UNIVERSAL DR.  
TAYLOR, MI 48180  
(313)965-2900

**Mr Mike Brauss**  
info@protoxrd.com  
www.protoxrd.com

**BOOTH #**  
**10**

Residual stress directly affects fatigue life, distortion, crack initiation, crack growth rates, stress corrosion cracking and hydrogen-induced cracking in iron or steel components. For over 30 years, Proto Manufacturing has been providing both measurement services and equipment for measuring residual stress in aerospace materials. Proto's leading edge x-ray diffraction (XRD) technology is portable, cost effective and provides the necessary data for making informed decisions about the health of aerospace components.



**Solar Atmospheres of Western PA**

30 INDUSTRIAL ROAD  
HERMITAGE, PA 16148  
(724)832-0660 Ext: 2223

**Mr Mike Johnson**  
mikej@solarwpa.com  
www.solaratm.com

**BOOTH #**  
**6**

Vacuum heat treating and brazing services provided by Solar Atmospheres produce bright, scale-free parts with minimal distortion. The Hermitage Pennsylvania plant 60 miles North of Pittsburgh specializes in vacuum thermal processing of large, mainly titanium manufacturing parts. This facility houses the world's largest commercial vacuum furnace (80" wide x 60" high x 432" long work zone - 150,000 lb. workload capacity) which uniquely benefits the aerospace industry. With a variety of furnaces processing smaller parts, Solar

Atmospheres serves 18 different industries. State-of-the-art services also include carburizing, nitriding and R&D. Additional plants are located in Fontana CA and Souderton PA.



**Southwest Research Institute**

6220 CULEBRA ROAD  
SAN ANTONIO, TX 78238-5166  
(210)522-3864

**Mr David Wieland**  
david.wieland@swri.org  
www.swri.org

**BOOTH #**  
**2**

Southwest Research Institute® (SwRI®) is an independent, nonprofit, applied research and development organization that has supported the Aircraft Structural Integrity Program (ASIP) efforts for military aircraft for more than thirty years. Our work has spanned the entire range of ASIP tasks, from providing in-flight measurements of aircraft loads to the fracture mechanics based damage tolerance analyses of critical fatigue locations using those loads. We have provided a complete range of testing, from detailed metallurgy exams to full scale aircraft fatigue tests. We offer a full array of ASIP engineering services and NDI support for all types of aircraft structure.



**ASIP**  
2013

## THE AIRCRAFT STRUCTURAL INTEGRITY PROGRAM CONFERENCE



### **Triumph Group Inc**

9314 W. JEFFERSON BLVD.  
DALLAS, TX 75211  
(972)946-8407

### **Mr David Kaiser**

dakaiser@triumphgroup.com  
www.triumphgroup.com

BOOTH #

11

With a history of technological innovation since 1917, Triumph Aerostructures — Vought Integrated Programs Division has a rich tradition of being a part of major advances in aerospace. Our test laboratories consistently offer customers cost-effective, state-of-the-art capabilities in a fully-equipped and certified facility centrally located in Dallas, Texas. With U.S. Air Force, U.S. Navy and Federal Aviation Administration (FAA) certification and Department of Defense security clearances, our labs are the only testing facilities not operated by prime aerospace original equipment manufacturers (OEMs) with full life-cycle testing capabilities — including full-scale structures. Whether you are looking for coupon or full-scale testing, supporting advanced development concepts or service life extension programs (SLEPs), on commercial or military platforms, Triumph Aerostructures —Vought Integrated Programs Division's Labs are the perfect choice.

## 2013 POSTER SESSION

### **POSTER SESSION 2013: LOCATED IN THE EXHIBIT HALL**

#### **Applying SGBEM-FEM for Fracture and Fatigue Analysis of Complex Structures**

*Mr Leiting Dong - University of California Irvine*

#### **Multiwalled Carbon Nanotube Reinforced Polymer as a Bonded Repair for AI 2024T3 a Fatigue Life Study**

*Mr Alberto Monsalve - Universidad de Santiago de Chile*

#### **Corrosion Effects on AI 2024T3 with a Bonded Repair of MultiWalled Carbon Nanotube Reinforced Polymer**

*Mr Alberto Monsalve - Universidad de Santiago de Chile*



**ASIP**  
2 0 1 4

**2014**

EXHIBIT PRESALES  
& SPONSORSHIPS

**2014 EXHIBITOR  
PRESALE RATE:**

**\$2100**

(SALE ENDS FRIDAY, JANUARY 24, 2014)

**2014 REGULAR BOOTH  
SALE PRICE \$2400**

**DEC 2-4 2014**

HYATT REGENCY, SAN ANTONIO, TEXAS

[WWW.ASIPCON.COM](http://WWW.ASIPCON.COM)

# AA&S 2014

AIRCRAFT AIRWORTHINESS & SUSTAINMENT CONFERENCE  
APRIL 14-17, 2014 • BALTIMORE, MARYLAND

**SUBMIT YOUR ABSTRACT!**

**ONLY THREE WEEKS LEFT:  
SUBMISSION DEADLINE DECEMBER 20, 2013!**

NEW TOPICS AND AN EXCITING NEW FORMAT!

**BECOME A SPONSOR!**  
GET NOTICED! SPONSOR<sup>OR</sup> EXHIBIT NOW

**NEW WEBSITE NAME [WWW.AASCONFERENCE.COM](http://WWW.AASCONFERENCE.COM)**

## A S P E C I A L T H A N K S

Thank you for attending the 2013 ASIP Conference, your participation is greatly valued and appreciated.

Please visit our website for the 2013 Conference Proceedings plus proceedings from previous years.

W W W . A S I P C O N . C O M



**ASIP**