



# FINAL 2019 AGENDA

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11/14/19

THE AIRCRAFT STRUCTURAL INTEGRITY PROGRAM CONFERENCE

DECEMBER 2-5, 2019  
SAN ANTONIO, TEXAS  
HYATT REGENCY RIVERWALK

2019

S A N A N T O N I O , T E X A S



# ASIP CONFERENCE 2019

DECEMBER 2-5, 2019 | SAN ANTONIO, TX | HYATT REGENCY RIVERWALK

## Monday, December 2, 2019

### 1:00 PM to 5:00 PM

Monday, December 2, 2019

1:00 PM - 5:00 PM

#### Training

##### AFGROWBAMF Training

*Instructor: Mr James Harter - LexTech Inc*

*Authors: Mr Alexander Litvinov - LexTech Inc, Mr Joshua Hodges - Hill Engineering LLC, Dr Robert Pylar - Hill Engineering*

### 6:00 PM to 8:00 PM

Monday, December 2, 2019

6:00 PM - 8:00 PM

#### Training

##### Automated 3D Crack Beta Curve Development via Smart Sim Apps

*Instructor: Mr Brent Lancaster - ESRD StressCheck*

## Tuesday, December 3, 2019

### 8:00 AM to 9:30 AM

Tuesday, December 3, 2019

8:00 AM - 9:30 AM

#### Welcome Remarks and Lincoln Award and Presentation

2019 Lincoln Award Winner: Mr Ko-Wei Liu

*Awaiting Confirmation*

### 10:00 AM to 11:30 AM

Tuesday, December 3, 2019

10:00 AM - 10:30 AM

#### Session 1: Overviews I

**Session Chair: Dr Ravinder Chona - USAF AFRL/RQ**

##### F35 Lightning II Joint Strike Fighter Full Scale Durability Tests

*Presenter: Mr Selen Minarecioglu - Lockheed Martin Co*

*Author: Mr Selen Minarecioglu - Lockheed Martin Co*

10:30 AM - 11:00 AM

##### F15 Longeron Fracture Mechanics Model Development and Risk Assessment

*Presenter: Mr Brian Boeke - USAF*

*Author: Ms Michelle Warmoth - USAF*

11:00 AM - 11:30 AM

##### T38 ASIP Teardowns One Man's Trash is Another Man's Treasure

*Presenter: Mr Isaac Grothe - SwRI*

*Authors: Dr Paul Clark - SwRI, Mr Kevin Gibbons - USAF Academy CASTLE, Mr Isaac Grothe - SwRI*

### 1:30 PM to 3:00 PM

Tuesday, December 3, 2019

1:30 PM - 2:00 PM

#### Session 2: Replacement Concepts I

**Session Chair: Dr Dale Ball - Lockheed Martin Co**

##### Replacing Existing Designs with Additive Manufactured Parts

*Presenter: Mr Jude Restis - The Boeing Co*

*Authors: Dr Rigoberto Perez - The Boeing Co, Mr Brandon Wegge - The Boeing Co, Dr Zachary Whitman - The Boeing Co, Dr Daniel Sanders - The Boeing Co*

2:00 PM - 2:30 PM

### Additive Manufacturing Structural Airworthiness Certification Compliance

*Presenter: Dr Rigoberto Perez - The Boeing Co*

2:30 PM - 3:00 PM

### Evaluation of process induced residual stress in aluminum die-forgings

*Presenter: Dr Adrian DeWald - Hill Engineering LLC*

*Authors: Dr Michael Hill - Hill Engineering LLC, Dr Dale Ball - Lockheed Martin Co, Dr Mark James - Arconic Inc, Dr William Musinski - USAF AFRL, Dr Thomas Spradlin - USAF AFRL/RQVS*

**3:30 PM to 5:00 PM**  
*Tuesday, December 3, 2019*

## **Session 3: Characterization, Modeling & Testing I**

**Session Chair: Mr Richard Holzwarth - USAF AFRL/RQVS**

3:30 PM - 4:00 PM

### Methods for Composite Structures Service Life Extension – CALE Demonstration

*Presenter: Mr Salvatore Liguore - The Boeing Co*

*Author: Dr Brian Justusson - The Boeing Co*

4:00 PM - 4:30 PM

### Quantification of Composite Aging from LongTerm Exposure

*Presenter: Dr Carl Rousseau - Lockheed Martin Co*

*Authors: Dr Stephen Engelstad - Lockheed Martin Co, Dr David Mollenhauer - USAF AFRL/RXCC*

4:30 PM - 5:00 PM

### The NASA Advanced Composites Project Technical Accomplishments Challenges

*Presenter: Dr Richard Young - NASA*

**5:15 PM to 7:00 PM**  
*Tuesday, December 3, 2019*

## **Exhibitor Reception**

**5:15 PM to 7:00 PM**  
*Tuesday, December 3, 2019*

## **Poster**

### Wing Weight Optimization Study

*Poster Presenter: Mr Jay Dvorsky - Triumph Aerostructures*

5:15 PM - 7:00 PM

### Different definitions of risk of failure of airframes and their implication

*Poster Presenter: Dr Ribelito Torregosa - Defence Science & Technology Group*

5:15 PM - 7:00 PM

### Next Gen Aluminum Alloys to Achieve Weight Savings Structural Integrity

*Poster Presenter: Mr James Michael - Triumph Group Inc*

*Author: Dr Sohan Singh - Triumph Aerostructures*

## **Wednesday, December 4, 2019**

**8:00 AM to 9:30 AM**  
*Wednesday, December 4, 2019*

## **Session 4: Overviews II**

**Session Chair: Mr John Brausch - USAF AFRL**

8:00 AM - 8:30 AM

### F16 Service Life Extension Program – breathing new life into old fighters

*Presenter: Mr Christopher Crowley - Lockheed Martin Co*

*Authors: Mr Shane Barrious - Rylex LLC, Mr Vernon May - Lockheed Martin Co*

8:30 AM - 9:00 AM

**B52 High Risk Overdue ASIP Details of 2017**  
*Presenter: Mr Travis Reese - AFLCMC/WWDEB*

9:00 AM - 9:30 AM

**ADF C27J Structural Substantiation Program**  
*Presenter: Mr Douglas Williams - Defence Science & Technology*

*Authors: Mr Douglas Williams - Defence Science & Technology, Mr John Morrish - Defence Science & Technology*

**10:00 AM to 11:30 AM**  
*Wednesday, December 4, 2019*

### **Session 5: Characterization, Modeling & Testing II**

**Session Chair: Mr David Nielson - AFLCMCWWUV (Invited)**

10:00 AM - 10:30 AM

**Validation of the A10 FullScale Finite Element Model FEM and Future Use**  
*Presenter: Mr Michael Worley - SwRI*

*Authors: Mr Brian Boeke - USAF, Mr Lawrence Stoker - USAF*

10:30 AM - 11:00 AM

**T38 Durability And Damage Tolerance Analysis Update**  
*Presenter: Mr Michael Wilcox - USAF*

*Author: Ms Teresa Moran - SwRI*

11:00 AM - 11:30 AM

**Gun Blast Overpressure Dynamic Effects on the Fatigue Life of AC130W Flaps**  
*Presenter: Mr Brandon Anderson - Mercer Engineering & Research Ctr*

*Authors: Mr Brandon Anderson - Mercer Engineering & Research Ctr, Mr William Rosales - Mercer Engineering Research Ctr, Mr Timothy Philbrick - Mercer Engineering Research Ctr*

**1:30 PM to 3:00 PM**  
*Wednesday, December 4, 2019*

### **Session 6: Prognostics & Risk Analysis**

**Session Chair: Mr Paul Barrow - Omega Air**

1:30 PM - 2:00 PM

**Probabilistic FailSafe Damage Tolerance Structural Risk Analysis**  
*Presenter: Mr Frank Grooteman - Netherlands Aerospace Centre*

*Author: Mr Marinus Bos - Netherlands Aerospace Centre NLR*

2:00 PM - 2:30 PM

**Sensitivity Analysis for Risk Assessment Methods and Applications**  
*Presenter: Ms Laura Hunt - SwRI*

2:30 PM - 3:00 PM

**Estimating Risk Reduction Due to Repeated Inspections for Cracks**  
*Presenter: Dr Thomas Brussat - Tom Brussat Engineering LLC*

**3:30 PM to 5:30 PM**  
*Wednesday, December 4, 2019*

### **Session 7: Residual Stresses in Aircraft Sustainment**

**Session Chair: Dr Thomas Spradlin - USAF AFRL/RQVS**

3:30 PM - 4:00 PM

**Lifing Methods and Experimental Validation of Engineered Residual Stresses**  
*Presenter: Mr Robert Pilarczyk - Hill Engineering LLC*

4:00 PM - 4:30 PM

**Quantification of Uncertainty in Forging Process Induced Residual Stress an**  
*Presenter: Dr Dale Ball - Lockheed Martin Co*

*Authors: Mr Bradford Cowles - Cowles Consulting LLC, Dr Adrian DeWald - Hill Engineering LLC, Dr Michael Hill - Hill Engineering LLC, Mr Mark Ryan - Lockheed Martin Co, Dr John Watton - Arconic Technology Ctr, Dr Joseph Yurko - Arconic Technology Ctr*

4:30 PM - 5:00 PM

## Residual Stress Life Improvement Validation Testing

*Presenter: Mr Jacob Warner - USAF*

5:00 PM - 5:30 PM

## Nondestructive Evaluation of Engineered Residual Stress

*Presenter: Dr Eric Lindgren - USAF AFRL*

### Thursday, December 5, 2019

**8:00 AM to 9:30 AM**

*Thursday, December 5, 2019*

#### **Session 8: Overviews III**

**Session Chair: Dr Gregory Schoeppner - USAF AFLCMC**

8:00 AM - 8:30 AM

#### A10 Blind Fastener Joint Allowable Testing

*Presenter: Mr Brian Boeke - USAF*

8:30 AM - 9:00 AM

#### Ultimate Load Factor Reduction

*Presenter: Mr Frank Grooteman - Netherlands Aerospace Centre*

*Authors: Mr Marinus Bos - Netherlands Aerospace Centre NLR, Mr Seungwoo Jin - Korea Aerospace Industries Ltd, Ms Eung Yeong Lee - Korea Aerospace Industries Ltd*

9:00 AM - 9:30 AM

#### ASIP Experiences for FAA Certified Commercial Derivative Aircraft

*Presenter: Ms Colleen Mahoney - The Boeing Co*

*Author: Mr Dan Hall - Boeing Defence Australia*

**10:00 AM to 11:30 AM**

*Thursday, December 5, 2019*

#### **Session 9: Life Enhancement Concepts**

**Session Chair: Mr Ryan Gifford - USAF**

10:00 AM - 10:30 AM

#### C5M Coldwork Testing for Life Shortfall on Front Spar Web

*Presenter: Mr Brian Dater - Lockheed Martin Co*

10:30 AM - 11:00 AM

#### Application of Residual Stresses at Cx Holes Compared to Fatigue Tests

*Presenter: Dr Scott Carlson - Lockheed Martin*

*Authors: Mr Keith Hitchman - Fatigue Technology Inc, Mr Joshua Hodges - Hill Engineering LLC, Dr Marcias Martinez - Clarkson University, Dr Craig Merrett - Clarkson University, Mr Caleb Morrison - Hill Engineering LLC*

11:00 AM - 11:30 AM

#### Edge Margin Effect on Fatigue Life of Cold Expanded Holes

*Presenter: Mr Evan Ross - Hill AFB Materials Lab*

**1:30 PM to 3:00 PM**

*Thursday, December 5, 2019*

#### **Session 10: Characterization, Modeling & Testing III**

**Session Chair: Mr Jessie Martin - USAF**

1:30 PM - 2:00 PM

#### Damage Tolerance Analyses under Aircraft Spectrum Loading

*Presenter: Dr James Newman - Mississippi State University*

2:00 PM - 2:30 PM

#### Improved Fatigue Life Design Package using Small Flaw Fracture Mechanics

*Presenter: Dr Robert Tryon - VEXTEC*

*Authors: Dr Animesh Dey - VEXTEC, Mr Robert McDaniels - VEXTEC, Dr Ibrahim Awad - VEXTEC*

2:30 PM - 3:00 PM

#### Surface Treatment Effects in Fatigue Analysis of Landing Gear Materials

*Presenter: Mr Benjamin Griffiths - Select Engineering Services*

*Authors: Mr Andrew Clark - USAF, Dr Andrew Halfpenny - HBM Prencscia, Dr Michelle Hill - HBM Prencscia, Mr Ben Madsen - General Atomics Systems Integration*

**3:30 PM to 5:00 PM**  
*Thursday, December 5, 2019*

### **Session 11: Overviews IV**

**Session Chair: Mr Jeffrey McFarland - The Boeing Co**

3:30 PM - 4:00 PM

**MQ9 Reaper FullScale Durability and Damage Tolerance Test**

*Presenter: Mr Richard Tayek - USAF*

*Author: Mr Andrew Bechtel - General Atomics Aeronautical Systems Inc*

4:00 PM - 4:30 PM

**The Inherent Need for Holistic Structural Integrity Application and Progress**

*Presenter: Dr Kimberli Jones - USAF*

*Authors: Mr Bryce Harris - USAF, Dr David Hoepfner - FASIDE International LLC*

4:30 PM - 5:00 PM

**An Innovative Approach to Individual Aircraft Tracking**

*Presenter: Mr Loris Molent - Defence Science & Technology*

*Author: Dr Oleg Levinski - Defence Science & Technology*