

# ICAF2017 Schedule Symposium



## Wednesday June 7

8:00-17:00 Registration

### Room A

#### 8:15-9:30 Session 1 - Plantema Lecture

8:15 Welcome Address

Mitsuo Kawakami - Director, Airworthiness Division, Aviation Safety and Security Department, Civil Aviation Bureau, Ministry of Land, Infrastructure, Transport and Tourism  
TBD

8:25 Introduction

Anders Blom *General Secretary of ICAF*

8:35 Plantema Memorial Lecture

*Chair: Anders Blom*

#### **Three Faces of Aeronautical Fatigue**

Abraham Brot *Former Israel National Delegate of ICAF*

9:35 Presentation of the Plantema Medal

#### 9:40-10:20 Session 2 - Full Scale Testing

*Chair: Ravi Chona*

9:40 **The Challenges in Airbus to Replace Full Scale Aircraft Fatigue Testing by Predictive Virtual Testing**

Linden Harris

*Airbus SAS, France*

10:00 **Full-Scale Fatigue Testing at Boeing Commercial Airplanes: From the 707 to the 787**

Steven Chisholm, Brandon Chapman, Shane Shaffner, Julie Smart, Timothy B. Adams, Kevin R. Davis

*The Boeing Company, USA*

10:20-10:50 Coffee Break, Poster & Exhibition Visit

Sponsored by JAL (Japan Airlines)

#### 10:50-12:10 Session 3 - Poster

10:40 Short Presentation of Poster Papers

2 min each

31 papers W1-W31 0.5 min interval

12:10-13:10 Lunch Break, Poster & Exhibition Visit

#### 13:10-15:10 Session 4 - Advanced Analytical, Numerical and Experimental Methods

*Chair: Thierry Ansert*

13:10 **Aircraft Fatigue Analysis in the Digital Age**

Kyle Graham, M. Artim and D. Daverschot

*Airbus, United Kingdom*

13:30 **Structural Damage and Repair Assessment for MRJ Aircraft**

Koji Setta<sup>1</sup>, Toshiyasu Fukuoka<sup>1</sup>, Keisuke Kumagai<sup>1</sup>, Toshio Nakamura<sup>2</sup>, Shunsuke Taba<sup>2</sup>

<sup>1</sup> *Mitsubishi Aircraft Corporation, Japan*, <sup>2</sup> *Mitsubishi Heavy Industries, Japan*

13:50 **State of the Art Curved Fuselage Panel Testing**

Mirko Sachse<sup>1</sup>, Silvio Nebel<sup>1</sup>, Sven Werner<sup>2</sup>, Martin Semsch<sup>1</sup>

<sup>1</sup> *IMA Materialforschung und Anwendungstechnik GmbH, Germany*, <sup>2</sup> *Airbus Operations GmbH, Germany*

14:10 **Innovative Repair of Classic Hornet Centreline Pylons Based on Optimal Shape Reworking**

Xiaobo Yu<sup>1</sup>, Jaime Calero<sup>1</sup>, Simon Barter<sup>1</sup>, Matt Gordon<sup>2</sup>, Michael Opie<sup>1</sup>

<sup>1</sup> *Defence Science and Technology Group, Australia*, <sup>2</sup> *Directorate General Technical Airworthiness, Australian Defence Force, Australia*

- 14:30 **Application of Experimental Mechanics Techniques for Multiaxial Fatigue Testing**  
David Backman<sup>1</sup>, Hiroshi Nakamura<sup>2</sup>, Min Liao<sup>1</sup>, Tyler Musclow<sup>1</sup>, Richard Desnoyers<sup>1</sup>  
<sup>1</sup> National Research Council Canada, Canada <sup>2</sup> IHI Corporation, Japan
- 14:50 **Crack Location Effects on Fatigue Crack Growth Behaviour in Friction Stir Welded 2024-T3 Aluminium**  
Kan Zhang, Weifeng Zang, An Chen, Dengke Dong  
AVIC Aircraft Strength Research Institute, China

15:10-15:40 Coffee Break, Poster & Exhibition Visit Sponsored by ANA (All Nippon Airways)

15:40-17:20 Session 5 - Residual Stress Engineering Chair: Stephen Reed

- 15:40 **The Hybridized Application of Crenellation and Laser Heating Techniques in Improving the Fatigue Performance of Airframe Structures**  
Jin Lu, Norbert Huber, Nikolai Kashaev  
Helmholtz-Zentrum Geesthacht, Germany
- 16:00 **Study of Mechanical Properties in Composites with Neutron Time-of-Flight Diffraction Method**  
Elżbieta Gadalińska<sup>1</sup>, Andrzej Baczmanski<sup>2</sup>, Mirosław Wróbel<sup>2</sup>, Sebastian Wroński<sup>2</sup>, Christian Scheffzük<sup>3,4</sup>, M. Malicki<sup>1</sup>  
<sup>1</sup> Institute of Aviation, Poland, <sup>2</sup> AGH-University of Science and Technology, Poland, <sup>3</sup> Karlsruhe Institute of Technology, Germany, <sup>4</sup> Frank Laboratory of Neutron Physics, Russia
- 16:20 **Fatigue Crack Growth Behavior in Residual Stress Field Formed by Friction Stir Welding**  
Takao Okada<sup>1</sup>, Shigeru Machida<sup>1</sup>, Toshiya Nakamura<sup>1</sup>, Takuya Noguchi<sup>2</sup>, Hirokazu Tanaka<sup>2</sup>, Motoo Asakawa<sup>2</sup>  
<sup>1</sup> Japan Aerospace Exploration Agency, Japan, <sup>2</sup> Waseda University, Japan
- 16:40 **Coldworking Holes with Shape Memory Alloy Sleeves**  
Albert S. Kuo  
A.S.K. INTERNATIONAL, Inc., USA
- 17:00 **Laser Shock Peening as Surface Technology to Extend Fatigue Life in Metallic Airframe Structures**  
Domenico Furfari<sup>1</sup>, Nikolaus Ohrloff<sup>1</sup>, Elke Hombergsmeier<sup>2</sup>, Ulrike Heckenberger<sup>2</sup>, Vitus Holzinger<sup>2</sup>  
<sup>1</sup> Airbus Operations GmbH, Germany, <sup>2</sup> Airbus Group Innovations, Germany

(17:30 Transportation to Tokugawa Art Museum/Tokugawaen)

18:15-20:00 Symposium Reception at Tokugawa Art Museum/Tokugawaen

(20:00 Transportation to Venue)

# Thursday June 8

8:00-17:00 Registration

## Room A

8:15-8:55 Session 6 - ICAF2017 Special Lecture Chair: Luigi Lazzeri

8:15 **Some Experiences from 31 years of ICAF Attendance and Some Thoughts for the Future**  
Anders Blom *General Secretary of ICAF*  
*Swedish Defence Research Agency (FOI)*

9:00-10:20 Session 7 - Full Scale Fatigue Tests and Management of Aging Fleets Chair: Phil Jackson

9:00 **Long Term Viper—Flying the F-16 to 8000 Hours and Beyond!**  
Kimberli Jones<sup>1</sup>, Bryce Harris<sup>1</sup>, Matthew Regan<sup>1</sup>, Scott V. May<sup>2</sup>, Austin Rickards<sup>1</sup>, Kevin Welch<sup>2</sup>  
<sup>1</sup> *United States Air Force, USA*, <sup>2</sup> *Lockheed Martin Aeronautics, USA*

9:20 **Fatigue Testing of New Generation Wide Body Aircraft at Benchmark Level**  
Fin Schorr, Olaf Tusch, Don Wu, Andreas Mösenbacher, Marcus Reimann, Armin Urban, Michael Stodt  
*IAB GmbH, Germany*

9:40 **An Overview of Standardized Capability for US Air Force Inspections**  
Eric Lindgren, John Brausch  
*Air Force Research Laboratory, USA*

10:00 **Airbus Wing Integration Centre. Filton, Britol, UK**  
Steve Raynes  
*Airbus Operations Ltd, Filton, United Kingdom*

10:20 **F-18 Flight Control Surface Life Extension Testing - CF-18 Horizontal Stabilator**  
C. Andre Beltempo<sup>1</sup>, Robert Rutledge<sup>1</sup>, Marko Yanishevsky<sup>1</sup>, David Backman<sup>1</sup>, Marc Genest<sup>1</sup>, Alexis Roussel<sup>2</sup>, Jonathan Juurlink<sup>3</sup>  
<sup>1</sup> *National Research Council Canada*, <sup>2</sup> *L3 MAS*, <sup>3</sup> *Royal Canadian Air Force*

10:40-11:00 Coffee Break, Poster & Exhibition Visit Sponsored by ShinMaywa Ltd.

11:10-12:25 Session 8 - Poster

11:10 Short Presentation of Poster Papers  
2 min each                      30 papers T1-T30      0.5 min interval

12:25-13:25 Lunch Break, Poster & Exhibition Visit

13:25-15:45 Session 9 - Full Scale Fatigue Tests and Management of Aging Fleets Chair: Yuval Freed

13:25 **Full-Scale Fatigue Testing of Two T-38 Wings Part II**  
Marcus Stanfield<sup>1</sup>, David Wieland<sup>1</sup>, Jon Cutshall<sup>1</sup>, Michael Blinn<sup>2</sup>  
<sup>1</sup> *Southwest Research Institute, USA*, <sup>2</sup> *United States Air Force, USA*

13:45 **A New Experience of Fatigue Testing with the A350 XWB**  
Peter Bösch<sup>1</sup>, David Eyre-Jackson<sup>2</sup>  
<sup>1</sup> *Airbus Operation SAS, France*, <sup>2</sup> *Airbus Operations GmbH, Germany*

14:05 **Blueprint TITANS: A Roadmap towards the Virtual Fatigue Test through a Collaborative International Effort**  
Albert Wong  
*Defence Science & Technology Group, Australia*

14:25 **A Review of Fatigue Test of Full Scale Aeronautical Structures in TsAGI during the Period from 2015 to 2017**

M.C. Zichenkov<sup>1</sup>, V.V. Konovalov<sup>1</sup>, K.S. Scherban<sup>1</sup>, V.H. Sahin<sup>2</sup>, A.G. Kalish<sup>3</sup>, A.B. Zholobov<sup>4</sup>, V.D. Chuban<sup>5</sup>, S.I. Tsurkov<sup>6</sup>, S.V. Kulikov<sup>7</sup>  
<sup>1</sup> *Central Aerohydrodynamic Institute*, <sup>2</sup> *Sukhoi Civil Aircraft Company*, <sup>3</sup> *Ilyushin Aviation Complex*,  
<sup>4</sup> *Concern "Sukhoi Attack Aircraft"*, <sup>5</sup> *Yakovlev Company*, <sup>6</sup> *Irkut Corporation*, <sup>7</sup> *Aerocomposite Company, Russia*

- 14:45 **Extending the German Air Force Tornado Fleet Operation - Concept of the Service Life Enhancement Project**  
Daniel Raatz  
*Airbus Defence and Space GmbH, Germany*
- 15:05 **Fleet Management Decision Making With Individual Aircraft Tracking Data**  
Jeff Newcamp, Wim J.C. Verhagen, Richard Curran  
*Delft University of Technology, the Netherlands*
- 15:25 **Use of Full Scale Fatigue Test Results to Produce Accurate Fatigue Life Predictions: Lessons Learned**  
 Shehzad Saleem Khan<sup>1</sup>, Alessandro Migliaccio<sup>1</sup>, Dort Daandels<sup>2</sup>  
<sup>1</sup> *Airbus Operations, United Kingdom*, <sup>2</sup> *Airbus Operations GmbH, Germany*

15:45-16:15 Coffee Break, Poster & Exhibition Visit Sponsored by Fatigue Technology (FTI)

16:15-17:55 Session 10 - Composite Materials / Adhesively Bonded Joints Chair: Degang Cui

- 16:15 **A Damage Modeling Framework for Fatigue Damage Evolution in Composite Laminates**  
 David Mollenhauer<sup>1</sup>, Mark Flores<sup>1</sup>, Endel Iarve<sup>2</sup>, Kevin Hoos<sup>2</sup>, Michael Braginsky<sup>3</sup>, Eric Zhou<sup>3</sup>  
<sup>1</sup> *Air Force Research Laboratory, USA*, <sup>2</sup> *University of Texas at Arlington Research Institute, USA*,  
<sup>3</sup> *University of Dayton Research Institute, USA*
- 16:35 **Effect of Environment on the Mechanical and Fatigue Behavior of Adhesive Bonded Repairs**  
John Bakuckas<sup>1</sup>, Ryan Neel<sup>2</sup>, Yongzhe Tian<sup>3</sup>, Ian Won<sup>1</sup>, Mark Freisthler<sup>1</sup>, Kelly Greene<sup>4</sup>, Carlyn  
 Brewer<sup>4</sup>, Jonathan Awerbuch<sup>5</sup>, Tien Min Tan<sup>5</sup>  
<sup>1</sup> *Federal Aviation Administration, USA*, <sup>2</sup> *FAA-Drexel Fellow, USA*, <sup>3</sup> *Diakon Corp, USA*, <sup>4</sup> *Boeing  
 Company, USA*, <sup>5</sup> *Drexel University*
- 16:55 **Fatigue Behavior and Damage Tolerant Design of Bonded Joints for Aerospace Application on Fiber Metal Laminates and Composites**  
Thomas Kruse<sup>1</sup>, Thomas Körwien<sup>2</sup>, Robert Hangx<sup>1</sup>, Calvin Rans<sup>1</sup>  
<sup>1</sup> *Delft University of Technology, the Netherlands*, <sup>2</sup> *Airbus Defence and Space, Germany*
- 17:15 **A New Study on Scatter Factors in Fatigue Testing of Composite Materials**  
Yuval Freed, Dvir Elmalich  
*Israel Aerospace Industries, Israel*
- 17:35 **Effect of Taper Angles on Delamination Strength of Tapered Composite Laminates**  
Yuichiro Aoki, Sunao Sugimoto, Yutaka Iwahori, Toshiya Nakamura  
*Japan Aerospace Exploration Agency, Japan*

(Walk to Nagoya Marriott Associa Hotel)

18:30-21:00 Symposium Banquet at Nagoya Marriott Associa Hotel

# Friday June 9

8:00-15:00 Registration

## Room A

8:15-8:50 Session 11 - Schive Award & Lecture *Chair: Marcel Bos*

8:15 Announcement of the Winner

8:20 Jaap Schijve Award Lecture

8:50-9:50 Session 12 - Young Researchers' Session *Chair: Michel Guillaume*

8:50 **Effect of Surface Roughness on Fatigue Crack Initiation in Additive Manufactured Components with Integrated Capillary for SHM Application**

Michaël Hinderdael<sup>1</sup>, Dieter De Baere<sup>1</sup>, Marc Moonens<sup>1</sup>, Reza Vafadari<sup>2</sup>, Patrick Guillaume<sup>1</sup>

<sup>1</sup> *Vrije Universiteit Brussel, Belgium*, <sup>2</sup> *Universiteit Gent, Belgium*

9:10 **The Effect of Decoupling of Corrosion and Fatigue**

Dinaz Tamboli<sup>1</sup>, Simon Barter<sup>2</sup>, Rhys Jones<sup>1</sup>

<sup>1</sup> *Monash University, Australia*, <sup>2</sup> *Defence Science and Technology Group, Australia*

9:30 **High-Functioning Composite T-Joint Using Atypical Stacking Sequence and Deltoid Structure**

Shinsaku Hisada, Kazunori Takagaki, Shu Minakuchi, Nobuo Takeda

*The University of Tokyo, Japan*

9:50-10:10 Coffee Break

10:10-12:10 Session 13 - Advanced Analytical, Numerical and Experimental Methods *Chair: Boris Nesterenko*

10:10 **Nucleation of Fatigue Cracks from Oxide Scales on Machined Pockets in Aircraft Structure**

Kevin Gibbons, Sandeep R. Shah

*Sabreliner Aviation LLC, USA*

10:30 **Probabilistic Damage Tolerance for Aircraft Fleets Using the FAA-Sponsored SMART|DT**

Juan Ocampo<sup>1</sup>, Harry Millwater<sup>2</sup>, Nathan Crosby<sup>2</sup>, Beth Gamble<sup>3</sup>, Chris Hurst<sup>3</sup>, Marv Nuss<sup>4</sup>, Michael Reyer<sup>5</sup>, Sohrob Mottaghi<sup>5</sup>

<sup>1</sup> *St. Mary's University, USA*, <sup>2</sup> *University of Texas at San Antonio, USA*, <sup>3</sup> *TEXTRON Aviation, USA*,

<sup>4</sup> *Nuss Sustainment Solutions*, <sup>5</sup> *Federal Aviation Administration, USA*

10:50 **Multiaxial Fatigue Life Assessment Using Cruciform Specimen for Ti-6Al-4V**

Hiroshi Nakamura<sup>1</sup>, David Backman<sup>2</sup>, Min Liao<sup>2</sup>, Takuya Yoden<sup>1</sup>, Tomoyuki Tanaka<sup>1</sup>

<sup>1</sup> *IHI Corporation, Japan*, <sup>2</sup> *National Research Council, Canada*

11:10 **Stress Intensity Factor Solutions to Cracks Emanating from Multiple Collinear Holes**

Wu Xu<sup>1</sup>, Xue-Ren Wu<sup>2</sup>, Yin Yu<sup>1</sup>, Xiao-Jing Zhang<sup>1</sup>, Xiu-Hua Cheng<sup>1</sup>

<sup>1</sup> *Shanghai Jiao Tong University, China*, <sup>2</sup> *Beijing Institute of Aeronautical Materials, China*

11:30 **Effect of Chromate on Corrosion Fatigue in Service Relevant Concentrations**

Sarah Galyon Dorman, Saravanan Arunachalam, Scot Fawaz

*SAFE Inc., USA*

11:50 **Damage Tolerance Test of Curved Panel with Longitudinal Crack Subjected to Pressurized Load**

An Chen, Jianghai Liao, Kan Zhang, Dengke Dong

*Aircraft Strength Research Institute of China, China*

12:10-13:00 Lunch Break

## Room A

13:00-15:00 Session 15 - Advanced Analytical, Numerical and Experimental Methods *Chair: Antoni Niepokólczycki*

13:00 **Incorporation of Multiple Crack Nucleation Mechanisms into Initial Flaw Size Distributions for Risk Analysis**

Laura Domyancic

*Southwest Research Institute, USA*

13:20 **Risk Assessment of Multiple Site Damage in Fuselage Lap Splices**

Keyi Mao, Zhenyu Feng, Jun Zou

*Civil Aviation University of China, China*

13:40 **Numerical Prediction of Fatigue Crack Propagation in Cold-Expanded Holes**

Luisa Boni<sup>1</sup>, Daniele Fanteria<sup>1</sup>, Luigi Lazzeri<sup>1</sup>, Domenico Furfari<sup>2</sup>

<sup>1</sup> *University of Pisa, Italy*, <sup>2</sup> *Airbus Operations GmbH, Germany*

14:00 **Towards a Physics Based Fatigue Crack Growth Equation – the Sixties Revisited**

Emiel Amsterdam

*Netherlands Aerospace Centre, the Netherlands*

14:20 **A Comprehensive Framework for Probabilistic Damage Tolerant Design of Aerospace Components**

Craig McClung, Michael Enright, Jonathan Moody, Yi-Der Lee, James Sobotka, Vikram Bhamidipati, John McClure

*Southwest Research Institute, USA*

14:40 **Creation, Verification and Validation of World's Largest  $K_I$ -data Bases for Multiple Cracks at a Countersunk and Straight-Shank Hole in a Plate Subject to Tension, Bending and Pin-Loading**

Börje Andersson<sup>1</sup>, Jim Greer<sup>2</sup>

<sup>1</sup> *BARE Börje Andersson Research & Engineering AB, Sweden*, <sup>2</sup> *U.S. Air Force's Academy Centre for Aircraft Structural Life Extension, USA*

15:00-15:20 Coffee Break

15:20-17:00 Session 17 - Materials Innovations for Aircraft *Chair: Carlos E. Chaves*

15:20 **Zoning Considerations for Additively Manufactured Parts of High Criticality**

Michael Gorelik

*Federal Aviation Administration, USA*

15:40 **Fatigue Crack Propagation Resistance Relevant to Microstructure in a Friction Stirred TI-6AL-4V Titanium Alloy Joint**

Masakazu Okazaki, M. Muzvidziwa<sup>2</sup>, S. Hirano<sup>3</sup>

<sup>1</sup> *Nagaoka University of Technology, Japan*, <sup>2</sup> *Hitachi Automotive Systems Co., Japan*, <sup>3</sup> *Hitachi Research Lab., Japan*

16:00 **Fatigue Crack Growth in Additive Manufactured Titanium: Residual Stress Control and Life Evaluation Method Development**

Xiang Zhang<sup>1</sup>, Filomeno Martina<sup>2</sup>, Abdul Khadar Syed<sup>1</sup>, Xiang Wang<sup>1</sup>, Jiluo Ding<sup>2</sup>, Stewart Williams<sup>2</sup>

<sup>1</sup> *Coventry University, United Kingdom*, <sup>2</sup> *Cranfield University, United Kingdom*

16:20 **On the Application of Metal Foils for Improving the Impact Damage Tolerance of Composite Materials**

Maria Pia Falaschetti<sup>1</sup>, Calvin Rans<sup>2</sup>, Enrico Troiani<sup>1</sup>

<sup>1</sup> *University of Bologna, Italy*, <sup>2</sup> *Delft University of Technology, Italy*

16:40 **Fatigue Substantiation Process for Ti-alloy Casting Fittings with Critical Structural Responsibility and Casting Factor = 1.0**

Ismael Rivero Arevalo, Maria del Mar Andres Sosa, Efrain Miron Rubio, Javier Gomez-Escalonilla Martin, Jose Ignacio Armijo Torres  
*Airbus Defence and Space, Spain*

17:20-17:50 Symposium Closure

Nobuo Takeda, Japan

Pre-Announcement of ICAF 2019

Anders Blom, General Secretary of ICAF

Marcel Bos, Next General Secretary of ICAF

## Room B

10:10-12:10	Session 14 - Structural Health Monitoring (SHM) and Their Implementation	<i>Chair: Iddo Kressel</i>
10:10	<b>Evaluation of Accidental Impact Scenarios For Transport Category Aircraft Based on Extensive Field Survey From Commercial Operators</b> <u>Stanislav Dubinskiy</u> <sup>1</sup> , Yuri Feygenbaum <sup>2</sup> , Sergei Gvozdev <sup>1</sup> , Andrei Selik <sup>1</sup> <sup>1</sup> Central Aerohydrodynamic Institute, Russia, <sup>2</sup> State Scientific Research Institute of Civil Aviation, Russia	
10:30	<b>Operational Loads Monitoring Program on Water Bomber Canadair CL-415</b> <u>Antonie Bisson</u> , Hubert Groizard, Joseph Despujols, Bastien Bayart, Chloé Kinzelin, Elise Lamic, Etienne Deshaies <i>DGA Aeronautical Systems, France</i>	
10:50	<b>Optical Fiber Sensor Based Aircraft Structural Health Monitoring System</b> Akira Kuraishi <sup>1</sup> , Yuji Ikeda <sup>1</sup> , <u>Hiroshi Mamizu</u> <sup>1</sup> , Yoichi Nakamura <sup>1</sup> , Toshizo Wakayama <sup>1</sup> , Nobuo Takeda <sup>2</sup> , Shu Minakuchi <sup>2</sup> , Kiyoshi Enomoto <sup>3</sup> <sup>1</sup> <i>Kawasaki Heavy Industries, Ltd., Japan</i> , <sup>2</sup> <i>The University of Tokyo, Japan</i> , <sup>3</sup> <i>R&amp;D Institute of Metals and Composites for Future Industries Research Association, Japan</i>	
11:10	<b>Recent Developments in SHM for Aircraft Structures – an Australian Defence Perspective</b> <u>Steve Galea</u> , Nik Rajic, Claire Davis, Scott Moss, Cedric Rosalie, Joel Smithard, Stephen van der Veldev, George Jung, Pat Norman <i>Defence Science and Technology Group, Australia</i>	
11:30	<b>Verification of the RAF C-130J SHM System through Operational Loads Measurement</b> <u>Stephen Dosman</u> , Alejandro Navarrete <i>Marshall Aerospace and Defence Group, United Kingdom</i>	
11:50	<b>Development of Ultrasonic Wave Based Structural Health Monitoring System for Practical Use</b> <u>Hideki Soejima</u> <sup>1</sup> , Kohei Takahashi <sup>1</sup> , Kensuke Yoshimura <sup>1</sup> , Masakatsu Abe <sup>1</sup> , Megumi Hiraki <sup>1</sup> , Nobuo Takeda <sup>2</sup> , Noriyuki Sawai <sup>3</sup> <sup>1</sup> <i>SUBARU Corporation, Japan</i> , <sup>2</sup> <i>The University of Tokyo, Japan</i> , <sup>3</sup> <i>RIMCOF, Japan</i>	
12:10-13:00	Lunch Break	



## Room B

13:20-15:20	Session 16 - Structural Health Monitoring (SHM)/Non-Destructive Inspection (NDI) <i>Chair: Steve Galea</i>
13:00	<b>Active Training Data Selection for Gaussian Processes Designed to Predict Loads on Aircraft Landing Gear from Other In-Flight Measurements</b> <u>Geoffrey R. Holmes</u> <sup>1</sup> , Andrew Thomas <sup>2</sup> , Wayne Capener <sup>2</sup> , Keith Worden <sup>1</sup> , Elizabeth Cross <sup>1</sup> <sup>1</sup> <i>The University of Sheffield, United Kingdom</i> , <sup>2</sup> <i>Safran Landing Systems UK Ltd, United Kingdom</i>
13:20	<b>Optical Fibers Based Cure Monitoring for Boeing 737 Fuselage Skin Composite Repair</b> <u>Iddo Kressel</u> <sup>1</sup> , Uri Ben-Simon <sup>1</sup> , K. Rozowsky <sup>1</sup> , H. Leibovich <sup>1</sup> , Z. Tron <sup>1</sup> , B. Bloch <sup>2</sup> , S. Pascal <sup>2</sup> , G. Ghilai <sup>1</sup> , M. Tur <sup>3</sup> <i>Israel Aerospace Industries, Israel</i> , <sup>2</sup> <i>CAAI, Israel</i> , <sup>3</sup> <i>Tel-Aviv University</i>
13:40	<b>Integrating Structural Health Monitoring into ASIP: Probability of Detection and Risk Considerations</b> <u>David Forsyth</u> <i>TRI/Austin, USA</i>
14:00	<b>US Air Force Perspective on Validated Nondestructive Evaluation – Past, Present, and Future</b> <u>Eric Lindgren</u> <i>Air Force Research Laboratory, USA</i>
14:20	<b>Stress Corrosion Crack Depth Estimation Based on Eddy Current Signal Strength</b>  <u>Andreas Uebersax</u> <sup>1</sup> , Cyril Huber <sup>2</sup> , Raphael Zehnder <sup>1</sup> , Josef Lussi <sup>1</sup> , Stefan Frei <sup>1</sup> <sup>1</sup> <i>RUAG Aviation, RUAG Schweiz AG, Switzerland</i> , <sup>2</sup> <i>Institute of Mechanical Systems, ZHAW, Switzerland</i>
14:40	<b>Influence of the Superalloy Structure Orientation on Ultrasonic Wave Attenuation</b>  <u>Jacek Nawrocki</u> <sup>1</sup> , Wojciech Manaj <sup>2</sup> , Kamil Gancarczyk <sup>1</sup> , Robert Albrecht <sup>3</sup> , Rafal Cygan <sup>4</sup> , Krzysztof Krupa <sup>1</sup> <sup>1</sup> <i>Rzeszow University of Technology, Poland</i> , <sup>2</sup> <i>Institute of Aviation, Poland</i> , <sup>3</sup> <i>University of Silesia, Poland</i> , <sup>4</sup> <i>Consolidated Precision Products Polska, Poland</i>
15:00-15:20	Coffee Break
15:20-17:00	Session 18 - Fleet Monitoring/Structural Lo <i>Chair: Shigeru Machida</i>
15:20	<b>Helicopter Manoeuvre Recognition: a Data-Driven Approach Using Two Different Data Sources</b> <u>Catherine Cheung</u> , Alejandro Lehman Rubio, Julio J. Valdes <i>National Research Council, Canada</i>
15:40	<b>Research on an Optimal Multiple Linear Regression Model for Aircraft Structural Load Analysis</b>  <u>Hongna Dui</u> , Yongjun Wang, Jiang Dong, Xiaodong Liu <i>AVIC CADI, China</i>
16:00	<b>Spectrum Truncation or Spectrum Compression? : When Time and Money Matters and Nothing Less Than a Fraction of the Original Spectrum is Acceptable</b> <u>Chris Wallbrink</u> , Beau Krieg <i>Defence Science and Technology Group, Australia</i>
16:20	<b>Aircraft Structural Load Identification Technology with High Accuracy in SPHM System</b>  <u>Yongjun Wang</u> , Jiang Dong, Hongna Dui, Xiaodong Liu <i>Chengdu Aircraft Design &amp; Research Institute, China</i>
16:40	<b>Comparison of Numerical and Experimental Results for the Door Surround Structure of a Pressurized Fuselage</b> <u>Sven Werner</u> <sup>1</sup> , Matthias Goetze <sup>2</sup> , Mirko Sachse <sup>2</sup> , Zoran Stankovic <sup>3</sup> , and Lance Howes <sup>3</sup> <sup>1</sup> <i>Airbus Operations GmbH, Germany</i> , <sup>2</sup> <i>IMA Materialforschung und Anwendungstechnik GmbH</i> , <sup>3</sup> <i>ELAN-AUSY GmbH</i>