SAE INTERNATIONAL

SAE 2014 AVIATION TECHNOLOGY FORUM 航空技术论坛

June 10-11, 2014

Sheraton Shanghai Pudong Hotel & Residences, P.R. China

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Hosted by:

中国商飞 COMAC

Event Guide

Includes Final Program

SAE INTERNATIONAL™

SAE 2014 AEROSPACE SYSTEMS AND TECHNOLOGY CONFERENCE

September 23-25, 2014
Hyatt Regency, Cincinnati, Ohio

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Executive Leadership
Provided by: GE Aviation

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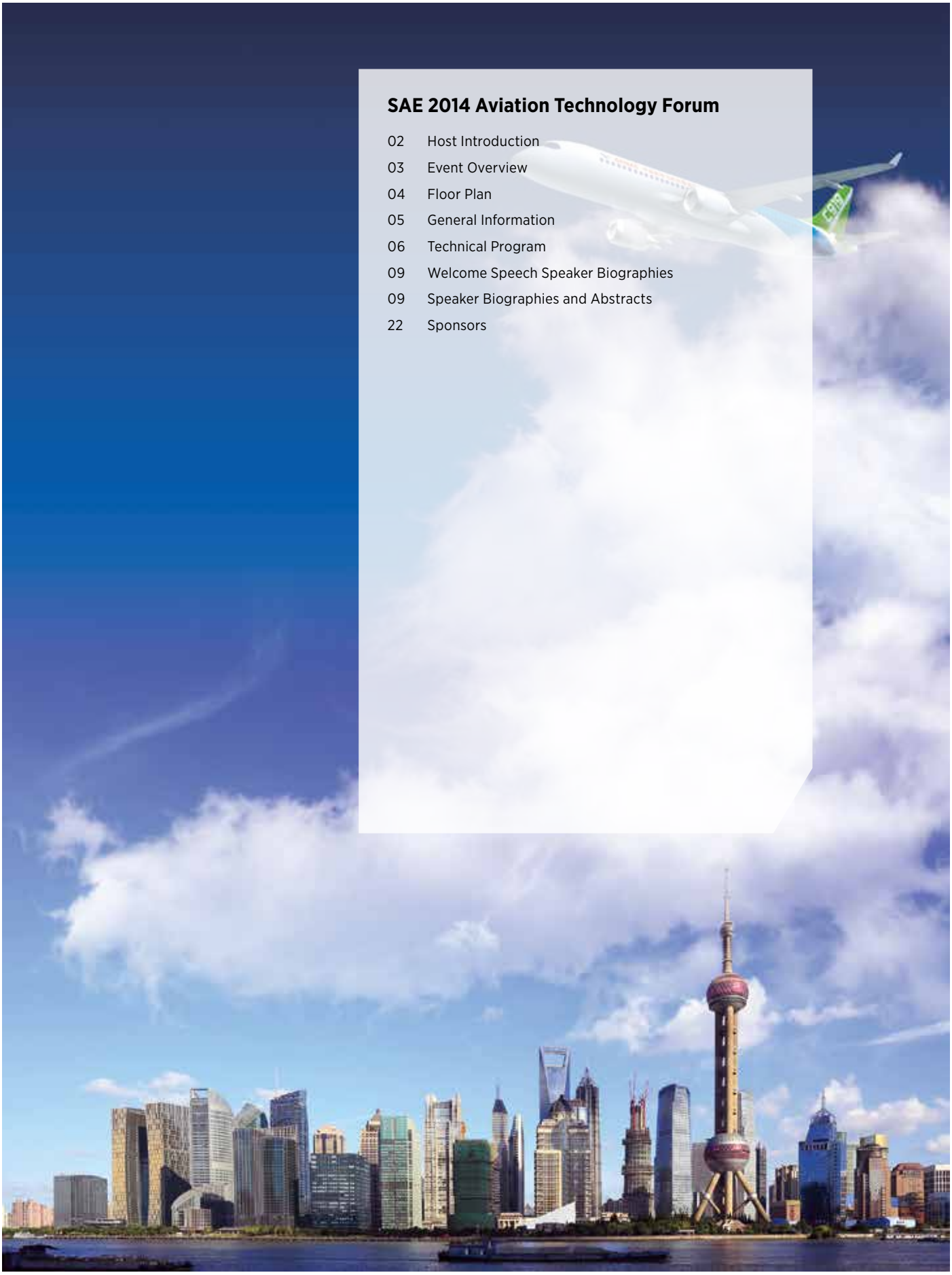
WHATS INSIDE



SAE 2014 Aviation Technology Forum

SAE International is a global association of more than 145,000 engineers and related technical experts in the aerospace, automotive and commercial-vehicle industries. SAE International's core competencies are life-long learning and voluntary consensus standards development.

SAE International has been facilitating the development of global standards for the aerospace industry since its introduction of the first interchangeable spark plug standard. And while known for producing the most mobility engineering standards, the fueling of a century worth of aerospace industry advancement has helped earn SAE the position of being the world's largest, most respected aerospace SDO.

Global standards are essential for aircraft certification airworthiness and interoperability. As the leading aerospace SDO, SAE International works with industry, government, and regulatory agencies throughout the world to create an extensive family of international standards that form the technical basis of regulations and government requirements.

SAE's global standard development role can be seen in its technical committee rosters, which include 7,000 experts from 56 countries—with European committee participation instances alone totaling 3,678. Its 250 committees—representing industry (airframers, suppliers, operators, MROs), regulatory authorities, military agencies, researchers, and consultants—serve the full spectrum of aerospace businesses in both the commercial and military sectors thereby meeting the engineering, advanced technology, safety, regulatory, and defense needs of a world market.

The Commercial Aircraft Corporation of China, Ltd. (COMAC) is a state-owned company, which is formed with the approval of the State Council and jointly invested by the State-owned Assets Supervision and Administration Commission (SASAC) of the State Council, Shanghai Guosheng (Group) Co., Ltd., Aviation Industry Corporation of China (AVIC), China Aluminum Corporation (CHINALCO), Baosteel Group, and Sinochem Group.

COMAC functions as the main vehicle in implementing large passenger aircraft programs in China. It is also mandated with the overall planning of developing trunk liner and regional jet programs and realizing the industrialization of civil aircraft in China. COMAC is engaged in the research, manufacture and flight tests of civil aircraft and related businesses such as marketing, servicing, leasing and operations of civil aircraft. The company has six member organizations: COMAC Commercial Aircraft Co., Ltd. (ACAC), Shanghai Aircraft Design and Research Institute (SADRI), Shanghai Aircraft Manufacturing Co., Ltd. (SAMC), Shanghai Aircraft Customer Service Co., Ltd., Beijing Civil Aircraft Technology Research Center (BCATRC), and Shanghai Aviation Industrial (Group) Co., Ltd. (SAIGC).

Organizers:

Supporting Media:

EVENT OVERVIEW

TIME	JUNE 10, 2014 TUESDAY	JUNE 11, 2014 WEDNESDAY
9:00	**KEYNOTE SPEECHES:** State of the Industry	**TECHNICAL SESSION:** Supplier Management and Standardization
9:30		
10:00		
10:30		Tech Session:Engine Systems
11:00		Tea Break
11:30		**TECHNICAL SESSION:** Engine Systems (continued)
12:00		
12:30	Lunch	Lunch
13:00		
13:30	**TECHNICAL SESSION:** Airworthiness and Systems Safety Assessment	**TECHNICAL SESSION:** Health Monitoring & Management for Maintenance
14:00		
14:30		
15:00		Tea Break
15:30	Tea Break	
16:00	**TECHNICAL SESSION:** Aerospace Modeling and Simulation	**TECHNICAL SESSION:** Electronics Standardization and Design
16:30		
17:00	**PANEL:** Global Standards Harmonization and Safety Issues	
17:30		
18:00		

The purpose of this session is to provide an open exchange of ideas. Remarks made by participants or members of the audience cannot be quoted or attributed to the individual or their company unless express permission has been granted by the individual and their company. Any record of remarks, discussion, or photographs may not be used unless express permission has been granted by the individual and their company.

Registration

June 9	Monday	13:00 - 18:00	Hotel Lobby, 1st Floor
June 10	Tuesday	08:00 - 18:00	Ballroom B Foyer, 2nd Floor
June 11	Wednesday	08:00 - 13:00	Ballroom B Foyer, 2nd Floor

Emergency Hotline

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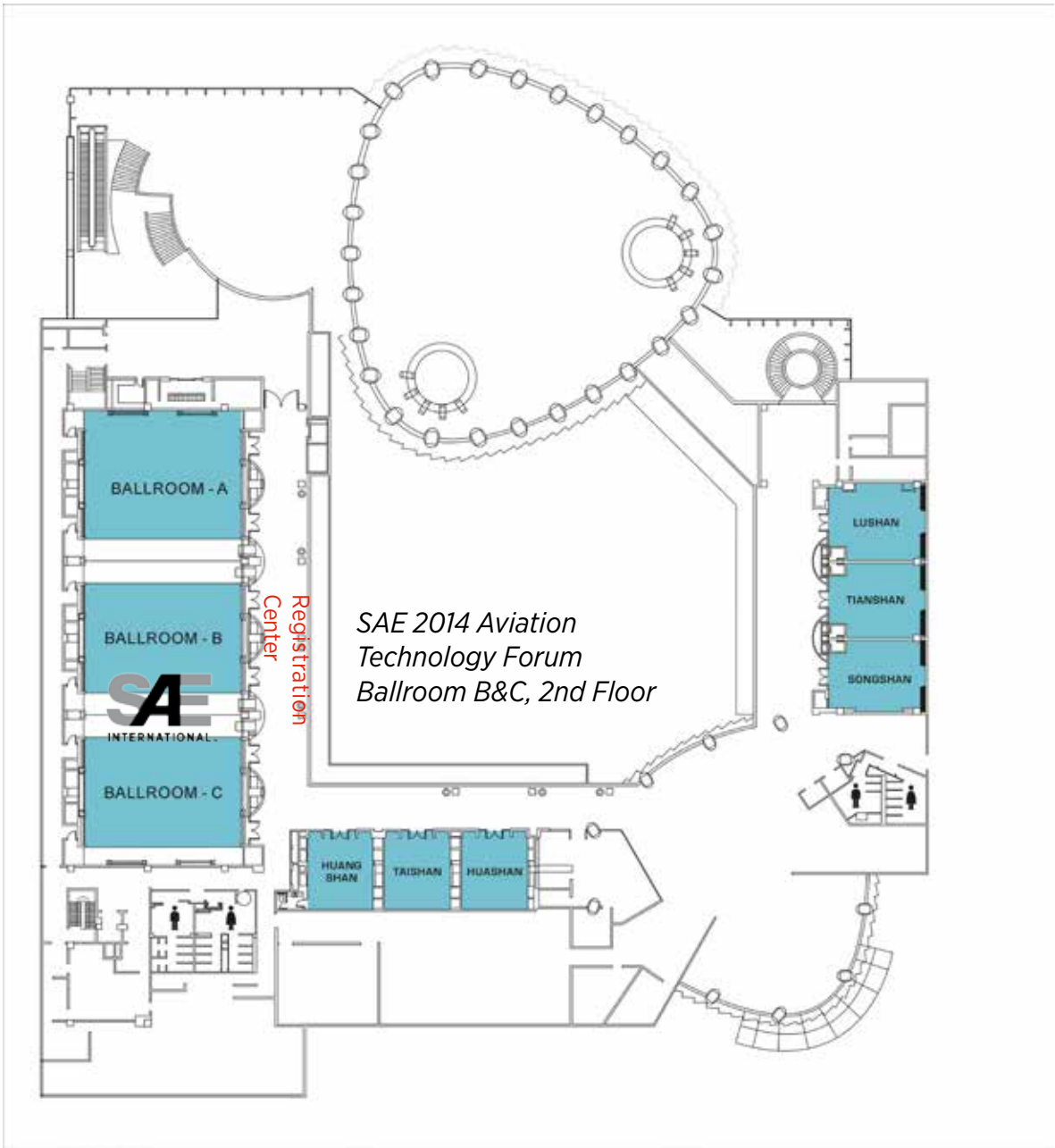
FLOOR PLAN



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TUESDAY
JUNE 10

WELCOME SPEECH

Dr. Jianzhong Shi, Vice President of COMAC and Member of the Party Committee of COMAC
Gary Schkade, General Manager, China; Managing Director, Aisa-Pacific, SAE International

KEYNOTE SPEAKERS: STATE OF THE INDUSTRY

09:10
Introduction to SAE
Dr. Richard Greaves, CTO, Meggitt, 2015 SAE International President Nominee

09:35
Innovation – a Must for COMAC's Way Forward
Dr. Susan YING, Chief Integration Officer, COMAC

10:20
Global Air Traffic Growth – Challenges and Opportunities for China
Dr. Anton WALSDORF, International Cooperation Manager, Airbus SAS

11:05
Bombardier Strategic Technology: Preparing the Future of Civil Aviation
Antoine Mocellin, Bombardier Aerospace

11:50
Research and Development Towards Sustainable Aviation Industry Development
Dr. Dongyang WU, Vice President, Boeing Research & Technology – China

AIRWORTHINESS AND SYSTEMS SAFETY ASSESSMENT

13:30
SAE Approach to Standards and The S-18 Safety Assessment Committee
John Dalton, The Boeing Company, Chairman of the SAE International S-18 Committee

14:00
Structured Development per ARP4754A – Benefits Beyond Certification
Eric Peterson, Electron II, Vice-chairman of SAE International S-18 Committee

14:30
Focus on issue in application of SAE ARP 4754A
Xupo OUYANG, Shanghai Aircraft Airworthiness Certification Center, CAAC

15:00
Structured Approach to Managing TSO Applications
Joe Reyes, Honeywell Aerospace

AEROSPACE MODELING AND SIMULATION

16:00
Mathematical Model of Water Contamination in Aircraft Fuel Tanks
Dr. Joseph K-W Lam, Fuel and Inerting Systems Research & Technology Lead Engineer, Airbus

16:30
Electrical Wiring Interconnect Systems (EWIS) Requirements – the Business Challenge
John Low, Worldwide Aerospace Programs Manager, Mentor Graphics

PANEL: GLOBAL STANDARDS HARMONIZATION AND SAFETY ISSUES

17:00
Moderator: **Bradley Perret** Asia-Pacific Bureau Chief, Aviation Week
Panelist: **John Dalton,** SAE S-18 Safety Committee**; Xupo Ouyang,** CAAC**;**
Lionel Burgaud, Aeroconseil**; Joe Reyes,** Honeywell Aerospace

WeChat Accounts:
SAEINTL

SUPPLIER MANAGEMENT AND STANDARDIZATION

09:00

Aircraft Manufacture Responsibilities and Supply Chain Management
Gaston FOJUTOWSKI, Bureau Veritas

09:30

SAFRAN – Snecma Quality Policy and Suppliers' Management
Cherif Khelil, Deputy General Manager, SNECMA Suzhou

10:00

The Airworthiness Certification Program and MRO Planning for C919 Aircraft
Dr. He REN, Acting Chief Engineer, SACSC, COMAC

ENGINE SYSTEMS

10:30

Preparing For a Wide Body Twin Aisle Engine
Jinzhang FENG, Deputy General Manager, ACAE; Deputy Director of R&D Center, ACAE

11:30

The Innovative Thinking on Civil Engine Module Development
Xin WU, Deputy Chief Designer, AVIC Shenyang Engine Design and Research Institute

12:00

Hexavalent Chromium Replacement
Gangmin CAO, Material R&D supervisor, Honeywell Aerospace

HEALTH MONITORING & MANAGEMENT FOR MAINTENANCE

13:30

IVHM and the Civil Aircraft of the Future
Prof. Ian Jennions, Cranfield University

14:00

Technical Committees and the Role of Standards in PHM
Dr. Ravi Rajamani, Engineering Director, Meggitt

14:30

Key Elements in Implementing Health and Maintenance Management Systems for Aircrafts and Engines
Dr. Ginger SHAO, Staff Systems Engineer, Honeywell Aerospace

ELECTRONICS STANDARDIZATION AND DESIGN

15:30

SW and HW Certification: Future Challenges and User Initiatives to Address Them
Lionel Burgaud, Head of the "Certification & Safety" Business Unit of Aeroconseil, Aeroconseil

16:00

Reducing Complexity of Advanced Integrated Systems: Impact on Certification
Xie Hao, TTTech

16:30

Certification of On-board Electronics in China
Fang YAN, System Safety Chief Official and Associate Researcher, Technologies and Management Research Center, CAAC Airworthiness Certification Dept.

17:00

PROCESS IMPROVEMENT IN ACTRI CONTEXT
Lirong TIAN, Certification Expert, Aeronautical Computing Technique Research Institute (ACTRI)

SAE INTERNATIONAL

SAVE THE DATE!

SAE 2015 AEROTECH CONGRESS AND EXHIBITION

September 22-24, 2015
Seattle Convention Center
Seattle, Washington

Executive Leadership provided by:

P140766

Jianzhong SHI
Vice President of COMAC and Member of the Party Committee of COMAC

Welcome Speech

JUNE 10

Mr Shi Jianzhong, born in August 1957 in Laizhou of Shandong Province, holds a Doctorate Degree and a technical title of Researcher. He started working in May 1975, and joined the Communist Party of China (CPC) in December 1980. He graduated from the Department of Aircraft of Nanjing Aeronautical Institute majoring in aircraft design with a Bachelor's Degree in 1982, and a Doctorate Degree in 2000, respectively. He attended the one-year Training Class for Young and Middle-aged Cadres in the Party School of the CPC from March 2005 to January 2006.

In February 1982, Mr Shi join No. 650 Research Institute of Nanchang Aircraft Manufacturing Corporation, served such successive roles as Technician, Group Leader, Deputy Director and Director of Research Office and Deputy Head and Head of the Institute. His technical titles has been successively Assistant Engineer, Engineer and Senior Engineer (Researcher level). He worked at McDonnell-Douglas Corporation from April 1989 to April 1991. He was later appointed as Head of No. 650 Research Institute of Jiangxi Hongdu Aviation Industry Group in January 1997, Vice President of Jiangxi Hongdu Aviation Industry Group in July 1998, Deputy Chief Engineer of China Aviation Industry Corporation II (AVIC II) in December 2000, and Member of the Party Leadership Group and Vice President of the AVIC II in November 2001; during this period, he also served as Administrative General Director of six aircraft models including Z8 and Z9 Helicopter programs, and L15 Advanced Trainer; Assistant to Governor and Member of the Government's Party Leadership Group of Guizhou Province from July 2007 to March 2008, and Vice President of COMAC and Member of the Party Committee of COMAC since March 2008.

Mr Shi was awarded such honorary titles as Shock Worker of New Long March in China, one of the First-Batch Top Ten Youths Aviation Technology awarded by Ministry of Aerospace Industry, Young and Middle-aged Expert with Outstanding Contributions in Scientific and Technical Industry for National Defense, one of One Hundred Excellent Masters and Doctors in Scientific and Technical Industry of National Defense, and State-level Candidate of "the New Century National Hundred, Thousand and Ten Thousand Talent Project". He received the Governmental Special Allowance by the State Council.

Dr. Richard Greaves
CTO, Meggitt
2015 SAE International President Nominee

Introduction To SAE

JUNE 10

Dr. Richard Greaves is Chief Technology Officer of the Meggitt group of companies. He joined the Meggit group with the takeover of his company Vibro-Meter, and has served as the Chief Executive of both the Aerospace Systems Division and the more recently-formed Sensing Systems Division.

From a background in the UK Atomic Energy Authority at Winfrith, Dr Greaves was instrumental in the development of piezoelectric transducers and other kinds of sensors used in condition monitoring systems for complex equipment such as aero-engines; these are now finding application across a range of business and industry in monitoring diverse high-value assets. Richard is a Fellow of the Institute of Physics, RAeS and the Royal Academy of Engineering (UK). He was elected as a Fellow of the US-headquartered Society of Automotive Engineers in 2010 and is serving on the board of SAE International.

Dr. Susan YING
Chief Integration Officer
Commercial Aircraft Corporation of China, Ltd.

Innovation – a Must for COMAC's Way Forward

JUNE 10

Dr. Ying is Chief Integration Officer of the Commercial Aircraft Corporation of China (COMAC). She has over 30 years of engineering and leadership experience in aerospace industry and academia. Dr. Ying is dedicated to the aerospace profession. As VP-international, she leads the International Activities Group and serves on the Board of the American Institute of Aeronautics and Astronautics (AIAA). She also serves on the Executive Committee of the International Council of Aeronautical Sciences. Recently she has been nominated to represent COMAC and serve on the SAE Aerospace Council. Dr. Ying is a Fellow of AIAA. She received her Ph.D. and M.S. in Aeronautics and Astronautics from Stanford University, and B.S. in Mechanical and Aerospace Engineering from Cornell University. She also holds a commercial pilot license with Instrument Flight Rating and FAA Certified Flight Instructor license.

ABSTRACT

China's commercial aviation market presents unparalleled growth and opportunities. However, the competition to supply the large passenger airplanes demanded by this market is anticipated to be extremely stiff. There are significant risks to be assumed in developing a new airplane. In particular, huge investments are necessary, not only for the large amount of design-manufacturing capital required, but also for skills to perform the highly challenging tasks associated with complex large-scale systems integration. Facing these challenges, COMAC must leverage innovation to catch up and leapfrog in state-of-the-art industry processes, tools, technologies, and in program management, people and knowledge management. This presentation shares insight and examples in these innovation areas for COMAC's way forward.

Anton Walsdorf
International Cooperation Manager, Airbus SAS.

Global Air Traffic Growth – Challenges and Opportunities for China

JUNE 10

Dr. Anton Walsdorf graduated from the Technical University in Munich in 1995, where he studied aeronautics / astronautics engineering as well as flight guidance and control theories.

At the University of the German Armed Forces in Munich he performed research in the field of human factors, information system architectures and cognitive cockpit assistance systems.

He received his PhD in 2001 for his works in modelling pilots knowledge based behaviour. From that time on, Dr. Anton Walsdorf held various positions in industry as system engineer, project manager, and business development manager in the fields of avionics, manned and unmanned aircraft, civil and military aviation, general and commercial air transport, air-ground infrastructures and air traffic management.

Since 2003, he has been involved in the Single European Sky Air Traffic Management (ATM) Research program (SESAR) and has performed close coordination with the U.S. FAA NextGen program. Dr. Anton Walsdorf joint Airbus Strategy & Future Programs directorate in 2010. As Business Development Manager for ATM, he launched several contracts and initiatives in the field of ATM research & technology. As International Cooperation Manager, he is now in charge of developing and launching cooperation in these areas worldwide."

ABSTRACT

Asia-Pacific region is leading global air traffic growth today. China is one of the fastest growing and largest aviation markets today and in 2032 and it will have soon the highest domestic traffic in the world. Increasing congestion and the need for sustainable development requires coordinated measures by all aviation stakeholders to be applied rapidly. An ideally suited set of effective and interoperable solutions will ensure that airlines can operate their fleet more cost efficiently within the given slot and airspace constraints, while serving all domestic and regional market demands; and passengers will enjoy shorter travelling time, while emissions will be significantly reduced.

Bombardier Strategic Technology: Preparing the Future of Civil Aviation

JUNE 10

Antoine Mocellin
Bombardier Aerospace

Based at Bombardier's Shanghai office since September 2012, Antoine reports directly to the President of Bombardier Aerospace Customer Services Antoine acts as the Bombardier Customer Services focal in China by growing key relationships with industry players, associations, operators and regulatory officials. As a member of the China Aerospace Leadership team, Antoine is leading the development and execution of Bombardier Aerospace Customer Services and Support strategy in China. His core responsibilities are to pursue business development opportunities in the region, liaise with aircraft sales teams to support deals, and most importantly help increase Bombardier Customer Services' public profile and reputation.

ABSTRACT

Bombardier Aerospace is an innovative corporation, having launched 31 different aircraft since 1989. The company operates in the business, regional and single-aisle commercial markets. The aerospace industry has specific aspects that require careful and thorough development of new technology ahead of inclusion in new products: Long and expensive aircraft development cycles, Long Product Lifetime and Intensive Capital Needs. These aspects and an increasing awareness of aviation impacts on the environment will guide the industry approach to technology development in the coming years. The paper will present the prospects for progress in various areas of aircraft technology: airframe and configuration, systems and structures, illustrating them with specific Bombardier applications. It will then review technology insertions on the Global 7000, a new high-speed long range business jet and on the Cseries, the new single-aisle family of airliners, currently in certification flight testing. This airplane, produced in part in China, leads the contribution of Bombardier to the general effort of the world aerospace industry towards sustainability.

NOTE

Dr. Dongyang WU
Vice President, Boeing Research & Technology – China

Research and Development towards Sustainable Aviation Industry Development

JUNE 10

Dr. Dong Yang Wu is a Technical Fellow (TF) of The Boeing Company in the area of chemistry, materials and processes since 2010. She is currently the Vice President of Boeing Research & Technology-China. Prior to this appointment, she was the Manager of the Melbourne Technology Centre and the Chief Scientist of Boeing Research and Technology-Australia from 2008 to 2012. Prior to joining the Boeing Company, Dong Yang has spent 17 years working at Commonwealth Scientific and Industrial Research Organization (CSIRO) of Australia as a leading scientist and Leader of the Sustainable Polymeric Materials Organization involving in research and commercialization of new technologies in Australia and globally.

Dong Yang was part of the team which received a Boeing Special Invention Award in 2010 for successful development and commercialization of a surface reactivation technology for Boeing. She has also obtained other awards such as 1998 Australia Technology Award (The Judging Panel Highly Commends) for the development and successful commercialization of a novel surface treatment for the automotive and building industries, and CSIRO Divisional Award for "Service from Science" in 2003, and a "Leadership" Award in 2004 etc.

Dong Yang obtained a Ph.D degree and a Master degree in Physical Chemistry from University of Haute Alsace (France) in 1991 and 1988 respectively, and a Bachelor degree in Chemistry from Sun Yat-Sen University (China) in 1986. She is also an Adjunct Professor at the Royal Melbourne Institute of Technology (RMIT) in Australia.

ABSTRACT

According to Boeing's Current Market Outlook 2013, China remains to be one of the most promising aviation markets, where 5,580 new airplanes will be delivered and the total fleet size is forecasted to triple over the next 20 years. To enable the huge market growth potentials and help Boeing operates healthy core business in this market, Boeing Research & Technology – China positions itself to be a valued partner, delivering knowledge and technologies for mutual benefits of Boeing and China, by addressing the key challenges for commercial and environmental sustainability of aviation industry. The outcomes from these activities contribute to preparing local infrastructure and support system for increased fleet, and reduced environmental impact by aviation industry.

The presentation will describe how Boeing has chosen and invested research activities in

(1) Sustainable aviation biofuels

(2) Recycling of carbon fiber reinforced composites

(3) Airspace operation efficiency

(4) Aircraft maintenance capabilities and efficiencies

(5) Future talent development in China for aviation & aerospace sector

These activities will ultimately contribute to sustainable aviation development in this fastest growing and largest commercial aviation market in the world.

John Dalton
The Boeing Company, Chairman of the SAE International S-18 Committee

SAE Approach to Standards and the S-18 Safety Assessment Committee

JUNE 10

John C. Dalton, Technical Fellow for the Boeing Company in Airplane Safety Engineering, was honored with the SAE International Arch T. Colwell Cooperative Engineering Medal during the SAE 2013 AeroTech Congress and Exhibition, held in Montreal, Canada.

Mr. Dalton has more than 40 years of engineering, safety analysis and management experience in airplane design and maintenance. In his present assignment, he functions as the Technical Fellow in airplane safety, charged with helping the company to resolve safety issues which require changes in the company's basic policies and procedures. In addition, he works with the airlines to improve operational safety in the field.

He is a Fellow of SAE International and a Fellow of the Royal Aeronautical Society, as well as Chairman of the SAE International S-18 international safety committee. In addition, Mr. Dalton is a member of the SAE Engineering Meetings Board and Chairman of the SAE Air & Space Group. He is the Editor-in-Chief of the SAE Aerospace Journal, and has authored numerous technical publications on the aircraft design safety field.

Structured Development per ARP4754A – Benefits Beyond Certification

JUNE 10

Eric Peterson

Electron II, Vice-chairman of SAE International S-18 Committee

Mr. Peterson is currently Vice-President of Systems and Safety for Electron International, Inc. He has over 35 years experience in aerospace management, system design and analysis, development of hardware and software, and safety assessments for commercial and military flight critical avionic and fly-by-wire system applications. He is also an inactive Systems and Equipment DER with a software endorsement. Mr. Peterson serves as vice-chairman of the SAE S-18 Committee and has provided key contributions to ARP4754A, ARP 4761, and ARP 5150. Mr. Peterson is also a member of the SAE AeroTech General Committee and has served as the Technical Program Chair for a number of SAE conferences. In addition, he is the recipient of the SAE Forest R McFarland Award for outstanding contributions to the SAE Engineering Meetings Board and is also the recipient of the SAE Outstanding Contribution Award for his work in the development of SAE Technical Standards. Mr. Peterson received his B.S. in Electrical Engineering from Montana State University.

ABSTRACT

In 2010, the SAE S-18 Committee completed the revision and publishing process of ARP4754A, "Guidelines for Development of Civil Aircraft and Systems". This revised recommended practice includes the guidelines for developing aircraft and system functionality using a structured process with activities and objectives of the process determined by the safety aspects of the functions being developed. A development assurance level modulates aspects of the process based on the safety aspects such that more rigor is applied in the process for the more safety critical functionality.

However, not all of the activities and objectives of the ARP4754A described process were included solely to satisfy a civil aircraft certification process. A number of the activities and objectives were the result of costly development lessons learned that the committee wanted to help other practitioners avoid. This presentation overviews the ARP4754A development process highlighting these project cost mitigation objectives and activities.

Focus on issue in application of SAE ARP 4754A

JUNE 10

Dr. Xupo OUYANG

Deputy Director, Shanghai Aircraft Airworthiness Certification Center, CAAC

Dr. Ouyang Xupo graduated from the Department of Mathematics of Sichuan University with a BSc in Computational Mathematics in 1985. From 1985 to 1988, he studied at the Department of Mathematics and Mechanics of Northwestern Polytechnical University with the specialty of numerical solution of partial differential equation, and received his MSc. From 1994 to 1999, he studied at the Institute of Vibration Engineering of Nanjing University of Aeronautics and Astronautics, and received his DE. From 1988 to 1999, he joined the Technology Center (Design Institute) of CAC Group as a designer, and specialized on areas such as aero-elasticity (flutter), flight performance, and aerodynamics, and conducted work including numerical analysis (finite element), ground test, wind tunnel test (including model design), and aircraft test. He was then promoted as the leader of the design team, and later took on some technical management work by serving as the deputy director of the overall plan office and the technology center. During his service as the deputy director of the overall plan office (1996-1999), Mr. Ouyang was in charge of the work related with aero-elasticity, performance, controllability and stability, load, air inlet matching, and aerodynamic characteristics; during his service as the deputy director of the technology center (2003-2007), he was responsible for the research and development of business aircrafts and maglev trains. In 2007, he transferred to Shanghai Aircraft Airworthiness Certification Center, and successively held the post of the director of the Flight Performance Office, deputy director of the Certification Center (responsible for the airworthiness certification work), Deputy Director of the Flight Performance Review Panel of ARJ21-700, and the Director of the Human Factor Review Panel. His current position is the director of the Review Panel of C919.

Dr. Ouyang has not only made a great contribution to the technology field, but also accumulated rich experience in operation and management. From 1999 to 2001, he worked as Deputy Director of Chengdu Aircraft Industry(Group)Co., Ltd. , taking charge of the military aircraft sales and the fixed asset investment of the group. Under the leadership of the group company, he finished various work including national investment, aircraft delivery, and examination and approval of major projects with national political support. From 2002 to 2003, he was assigned as the CEO assistant and the director of the Financing Plan Department of COMAC, mainly responsible for the planning

Dr. Xupo OUYANG's Bio (Continued)

and financial work, and taking part in important business activities. From 2003 to 2006, he held the post of CEO of Chengdu Wit Electronic Fuel System Co. Ltd., and founded the first domestic high-tech product company, which specialized in electronic control fuel injection system of the engine in the field of auto parts and launched the first electronic control system and diesel engine that could reach the Euro-III emission standards.

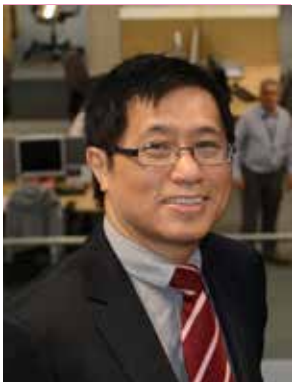
Dr. Ouyang is a researcher-level senior engineer, and was hired as a special expert of the Civil Aviation Administration and Ministry of Transportation. He has won many awards, including the Second Prize of the Science and Technology Progress Award, the Award to Master Degree Holder with Outstanding Contribution presented by the Ministry of Aero Industry, the fifth Top Ten Outstanding Young Talent of Chengdu, Young Management Talents of Chengdu, and "Top Ten" Young People of Chengdu Aircraft Industry(Group)Co., Ltd. .

Joe Reyes
Sr Technical Manager – International Certification, Honeywell

Structured Approach to Managing TSO Applications

JUNE 10

Joe Reyes is currently employed with Honeywell, as the Sr Technical Manager for International Certification and is temporarily located in Brno, Czech Republic. His management assignments include Technical Manager with the Embraer Applications team, Operations Excellence Sr Technical Manager with the FMS team, and now as the Sr Technical Manager International Certification with Honeywell Product Integrity department, covering China, the Czech Republic, and India. In his current position, Joe is responsible for expanding the role of the Product Integrity team hosted within the Honeywell Technical Solutions (HTS) entity.



Dr. Joseph K-W Lam
Fuel and Inerting Systems Research and Technology Lead Engineer
Airbus Operations Ltd.

Mathematical Model of Water Contamination in Aircraft Fuel Tanks

JUNE 10

Dr. Joseph Lam is a fuel and inerting systems research and technology lead engineer at Airbus in Filton, UK. His main research focus is water and ice management in fuel systems. He led the EASA (European Aviation Safety Agency) WAFCOLT (Water in Aviation Fuel under COLd Temperature conditions) project in 2011 and the EASA ICAR (ICe Accretion and Release in fuel systems) project in 2013. He was a key speaker at an Institution of Mechanical Engineers (IMechE) seminar on "Managing Water and Ice in Aviation Fuel Under Low Temperature Conditions" in 2013.

Dr. Lam holds a BSc in mechanical engineering from the University of Southampton, a MSc in numerical analysis and mathematical modelling from the University of Oxford and a PhD in glacier geophysics from the University of Cambridge. He is a Chartered Engineer and a fellow of the IMechE; and a Chartered Mathematician and a fellow of the Institute of Mathematics and its Application (IMA). Dr. Lam is a Royal Academy of Engineering (RAEng) visiting teaching fellow in engineering design. He gives lectures and workshops in systematic innovation to postgraduate students at Cranfield University.

Dr. Lam was awarded the SAE Wright brothers' medal in 2011 and the Royal Aeronautical Society (RAeS) Society Bronze team medal in 2013.

ABSTRACT

Water is a contaminant that can lead to fuel system icing, microbial contamination, corrosion and fuel quantity gauging problems and therefore an efficient water management system is required in order to maximise the performance of an aircraft's fuel system. This paper describes a time-transient aircraft fuel tank model with water contamination, due to the principal mechanisms of dissolution, suspension, condensation and transportation. The tank model presented is a component of the NEPTUNE fuel system model which was developed for Airbus using the A380 as an example aircraft. A description of the physics of water contaminated fuel is given and of how this has been incorporated into a mathematical model of an aircraft fuel tank. A modular approach is demonstrated which enables interconnecting fuel tanks to be configured in larger systems in a flexible and easily understood manner.

John Low
Worldwide Aerospace Programs Manager
Mentor Graphics

Electrical Wiring Interconnect Systems (EWIS) Requirements – the Business Challenge

JUNE 10

John Low is Worldwide Aerospace Programs Manager for Mentor Graphics' Integrated Electrical Systems Division. John has been actively involved in the aerospace industry for over 30 years. He started with design and manufacturing engineering responsibilities on rocket propulsion systems followed by work with The Boeing Company in a variety of design engineering roles on commercial and military applications. Following that, John was a consultant for IBM's Aerospace Solutions team focusing on business aviation. John has published multiple technical articles on how software tools are evolving to address today's challenges in electrical distribution systems development.

ABSTRACT

A series of fatal aircraft accidents between 1996 and 1999 focused regulators on wiring-related failures, resulting in the creation of the Electrical Wiring Interconnect Systems (EWIS) requirements, FAR Part 25, Subpart H. This relatively new mandate has OEMs not just scrambling to meet the requirements, but also re-evaluating and improving internal business processes and their supplier relationships.

Without proper planning and the evolution of their business to efficiently deal with the EWIS mandates, companies could find themselves in a very costly situation. This presentation investigates the issues surrounding EWIS compliance and methods to minimize both cost and potential program delays.

Panel Discussion: Global Standards Harmonization and Safety Issues

JUNE 10

Bradley Perrett
Asia-Pacific bureau chief, Aviation Week

Bradley Perrett has been the Asia-Pacific bureau chief of Aviation Week since 2006, based in Beijing. He previously worked for Reuters for 14 years, mostly as a macroeconomics, politics and aerospace reporter, in Canberra, Singapore, London and Beijing. He is an Australian and holds a bachelor's degree in law from Macquarie University, Sydney.

Gaston FOJUTOWSKI
BUREAU VERITAS

Aircraft Manufacture Responsibilities and Supply Chain Management

JUNE 11

French, 61 years old, Gaston FOJUTOWSKI is a graduated engineer from the Aeronautic school of Palaiseau. After 25 years spent in different sectors and several organization industries of the Aeronautic sector, he joined BUREAU VERITAS in 1994.

Main references:

Consultant, Trainer & Lead Auditor - Advisor, trainer & Lead Auditor in Design, production and maintenance organization,

Assistance to Civil Aviation Authorities: Consultant – Airworthiness expert

- JAA/EASA assistance to Hellenic Civil Aviation Authority in field of airworthiness - Assistance to Russian Civil Aviation in technical audit - Component Key Expert (Initial and Continuing Airworthiness) for EUCCAP Project in China

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Assistance in Quality Tool Development

- Supply Chain Management - Process engineering and Process Control, - FAI and Key Characteristics Management:

Other personnal skills and competences:

- EASA airworthiness expertise to Civil Aviation Authorities and Organizations - EASA 1702 and 2042 audit management and training - CFR Part 145, 43, 91 and 21 audit management and training - EN 9100/9110/9120 audit management, and training

Chérif Khelil
Deputy General Manager, Snecma Suzhou

SAFRAN – Snecma Quality Policy and Suppliers' Management

JUNE 11

Chérif KHELIL is part of Safran group since 26 years with 15 years of Quality responsibilities and is graduated with a Master in Engineering of Systems of production at University of Science and Technologies of LILLE, France.

Cherif KHELIL is currently Deputy General Manager of Snecma Suzhou in China and is head of Quality and the Asian Supplier support team since about 3 years.

Prior to this function, Cherif KHELIL was, leading the Snecma North America Supplier Performance team during 4 years (from 2007 to 2011) based in Cincinnati, Ohio, USA

Cherif KHELIL has been a strong contributor of IQAG activities as being one of the leader of the Supply Chain Management Handbook and leading the Supply Chain assessment tool.

During 4 years (2003 to 2007), he was representing SAFRAN at the Performance Review Institute Nadcap Management Council; he was then in charge to deploy Nadcap accreditation process within Safran companies. Cherif KHELIL was at that time in charge to deploy Quality Synergies within Safran Companies (Standardization and harmonization of Procedure, tools and best practices).

Beyond these responsibilities, Cherif KHELIL occupied various functions within Safran Headquarter, Snecma and Snecma Services

ABSTRACT

The presentation will remind the major components of SAFRAN Quality Policy including 2013 revision elements. Alignment of suppliers' requirements, suppliers' performances measurements, suppliers' management with respect to global policy will be detailed. In addition explanation of suppliers quality requirements elaborated both in the frame of International Aerospace Quality Group and Aerospace Engine Suppliers Quality Group will be provided.

Dr. He REN
Acting Chief Engineer
SACSC, COMAC

The Airworthiness Certification Program and MRO Planning for C919 Aircraft

JUNE 11

Prof. REN He obtained his full-time Doctoral Degree from Northwest Polytechnical University, and started working in 1987 in Xi'an Aircraft Design and Research Institute. He worked as the team leader of professional team of CAD Reliability, head of Quality and Reliability Information Station, Vice director of Airworthiness Reliability Research Department and senior engineer. He was a senior visiting scholar (in RMIT University in Australia) supported by China Scholarship Council in 1997, and was a postdoctoral fellow in DSTO-AMRL in 1999. And then, Dr. REN was a research fellow in Newcastle University in 2000. He served as scientific and engineering consultant in RAAF in 2002. Since 2003, he has successively held the posts of senior lecturer, professor, doctoral supervisor, international student coordinator in School of Aerospace, Mechanical and Manufacturing Engineering at RMIT University, a fellow member of Engineer Institute Australia and so on. He is a guest professor of Nanjing University of Aeronautics and Astronautics and Northwest Polytechnical University in 2006 and 2008 respectively. In Shanghai Aircraft Customer Service Centre (SACSC) of Commercial Aircraft Corporation of China, Ltd., he is the acting chief engineer, acting chairman of Science and Technology Committee from 2011. In 2012, he has been selected to joint Shanghai Pujiang Program. Dr. REN also has had working experience in a number of aircraft developments such as JH7, MPC75, AE100 , B707, PAX750, A380, J35, ARJ21, C919 and so on.

ABSTRACT

This presentation is going to talk about the process of airworthiness certification and MRO planning for C919 aircraft. It is also to present some details about Reliability, Safety, Maintainability considerations in the aircraft development.

PHOTO NOT AVAILABLE AT TIME OF PRESS

Preparing For A Wide Body Twin Aisle Engine

JUNE 11

Jingzhang FENG
Deputy General Manager, ACAE; Deputy Director of R&D Center, ACAE

Xin WU
Deputy Chief Designer, AVIC Shenyang Engine Design and Research Institute

The Innovative Thinking on Civil Engine Module Development

JUNE 11

Wu Xin, who has worked for AVIC Shenyang Engine Design and Research Institute (SEDRI) for 24 years, has 20 years' work experience on engine system design. He is currently the deputy chief designer of engine systems. In the past 5 years, he led the team to engage in the research of civil engine health management, and to actively cooperate with MSS on civil engine heath management system. He was graduated from Wuhan University of Science and Technology, being a bachelor of engineer in Fluid Power Transmission and Control. He obtained the master degree in engineering at Beihang University (the Beijing University of Aeronautics), majoring in Energy and Power Engineering.

ABSTRACT

This report introduces the civil high bypass ratio engine components design technology and application. It describes the high bypass ratio fan / IPC and high bypass ratio multi-stage low-pressure turbine design technologies and applications, specifically including the "curved-swept" fan rotor blade design, wide-chord fan rotor blade design/ manufacturing, fan containment case design / manufacturing, fan rotor aerodynamic / acoustic integrity design, multi-stage low-pressure turbine aerodynamic optimization design, high-load low-loss turbine blade design and other technical applications. Last comes the prospect of the developing trend of civil high bypass ratio engine components design technology.

Hexavalent Chromium Replacement

JUNE 11

Gangmin CAO
Material R&D supervisor, Honeywell

Gangmin is material R&D supervisor in Honeywell Integrated Technology (China), he is key technical resource in aqueous and non-aqueous electroplating, chemical process development. Gangmin leads a group to support global and local Aerospace business in material R&D, chemistry analysis, mechanical test and technical support.

Gangmin has been working for Honeywell for 7 years with 10 years working experiences in electroplating and electroless plating application, mechanical test and metallurgy test. He has received "2013 Honeywell Aerospace Technology Achievement Award". Gangmin has a master's degree from Xiamen University.

ABSTRACT

Mist in hexavalent (Cr6+) state released during the hard chrome plating process has been known to be carcinogenic. Most at risk are workers associated with the plating processes. Ground water contamination is also an issue. As a result, many nations, including the US and EU, are restricting the use of hexavalent chromium. Honeywell Aerospace has developed electroplating Cobalt Tungsten and Nickel Tungsten to replace hard chrome plating for internal surface applications such as Flow Body Valve and other intricate parts.

IVHM and the Civil Aircraft of the Future

JUNE 11

Prof. Ian Jennions
Cranfield University

Ian's career spans some 40 years, working mostly for a variety of gas turbine companies. He has a Mechanical Engineering degree and a PhD in CFD both from Imperial College, London. He has worked for Rolls-Royce (twice), General Electric and Alstom in a number of technical roles, gaining experience in aerodynamics, heat transfer, fluid systems, mechanical design, combustion, services and IVHM. He moved to Cranfield in July 2008 as Professor and Director of the newly formed IVHM Centre. The Centre is funded by a number of industrial companies, including Boeing, BAE Systems, Rolls-Royce, Thales, Meggitt, MOD and Alstom Transport. He has led the development and growth of the Centre, in research and education, since its inception. The Centre offers a short course in IVHM and the world's first IVHM MSc, begun in 2011.

Ian is on the editorial Board for the International Journal of Condition Monitoring, a Director of the PHM Society, contributing member of the SAE IVHM Steering Group and HM-1 IVHM committee, a Chartered Engineer and a Fellow of IMechE, RAeS and ASME. He is the editor of four recent SAE books: 1) IVHM – Perspectives on an Emerging Field, 2) IVHM – Business Case Theory and Practice, 3) IVHM – the Technology, and: 4) IVHM: Essential Reading.

ABSTRACT

The goals that are being set for aviation growth in the near future, combined with the growth in service provision, are unattainable without active health management of airplanes. Numbers associated with door to door travel time and accident rates, coupled with availability demands to provide cost-effective transport, simply do not allow time for unscheduled maintenance. Therefore we are going to experience a step jump in the take up of Integrated Vehicle Health Management (IVHM) on these platforms in order to give accurate warning of sub-system and component degradation, allowing for maintenance to be carried out in a timely, scheduled, manner.

This presentation starts by defining IVHM and expanding on three reasons why it is needed: safety, operational and economic. It will then look at the complementary work being done by the IVHM Centre in the UK and by the SAE IVHM standards groups. The synergism between groups like these is necessary to ensure that technology is not developed in a vacuum but has a road forward to exploitation. Some examples of current research, against the background of an agreed taxonomy, will be shown.

Technical Committees and the Role of Standards in PHM

JUNE 11

Dr. Ravi Rajamani
Engineering Director, Meggitt

Dr. Ravi Rajamani joined Meggitt in 2011 as an Engineering Director, after spending nearly 11 years with United Technologies Corporation, first at the Research Center, and then with its Pratt & Whitney division. Before this he was with the General Electric Company for 10 years, most closely associated with its Research Center and the Power Generation business, but working with all other businesses as well. While his interests have changed over the years, his primary focus has been the area of controls and diagnostics of gas turbines for aerospace and industrial applications. Ravi has a BTech (ME) from IIT Delhi, an MS (Automation) from IISc, Bangalore, and a PhD (EE) from the University of Minnesota. He also obtained an MBA from the University of Connecticut.

He has published four book chapters, numerous papers in refereed journals and conference proceedings, has been invited to speak at conferences and institutions around the world, and has 24 patents to his name. He is active within SAE's Engine Health Management (E-32) and Integrated Vehicle Health Management (HM-1) committees, currently serving as the chair of HM-1. He is also active in the PHM Society and is going to be the general chair of the 2014 European PHM conference in Nantes.

ABSTRACT

The recently constituted IVHM Steering Group has been coordinating the role of many technical committees in developing and disseminating knowledge about system and vehicle health management technologies and processes within the aerospace community. Dr. Rajamani will discuss the role of two key committees in this endeavor, the four decade-old E-32 (propulsion health management) TC and the HM-1 (integrated vehicle health management) TC. He will outline the history of these committees, the documents that are being worked on, and the documents that are in the pipeline. In particular, he will emphasize the role of these committees in developing guidelines for system certification of both fixed wing and rotorcraft health management systems. He will also share with the audience his personal history of involvement in these committees and some thoughts on what he believes are the benefits to be had by participating.

Key Elements in Implementing Health and Maintenance Management Systems for Aircrafts and Engines

JUNE 11

Dr. Ginger Shao
Honeywell Aerospace

Dr. Ginger Shao is a Staff Systems Engineer at Honeywell Aerospace, leading CBM systems design and development for propulsion engines and rotorcraft health management. Her specific interests include algorithm development for diagnostics and prognostics, systems modeling, systems requirements development, systems architecture design, systems certification, and the CBM system integration with engine controls and logistics, with published papers and patents. She is currently serving as a member of the SAE HM-1 Standard Committee for IVHM system architecture and requirements standard development. She has chaired Prognostics and Health Management (PHM) Society conference sessions on PHM tutoring, panel discussions, and luminaries, and is an active member of the PHM Society Standard Committee. She graduated from Peking University in China, has a Ph.D. of Atmospheric Sciences from the Colorado State University in USA, an MBA from the University of Arizona in USA, and is 6-sigma Blackbelt certified.

ABSTRACT

Integrated vehicle health management (IVHM) and condition-based maintenance (CBM) have been receiving increasing acceptance by end users for their products that are safety critical and/or with high level of maintenance needs. IVHM and CBM, if implemented properly, can reduce system down time, increase system reliability, increase system availability and readiness, enhance safety, reduce burden on vehicle operators and maintainers, and reduce operational and support (O&S) costs. The key elements of implementing the health management and maintenance management system, together with their integration with logistic systems, will be discussed in the presentation for the realization of the benefits from such systems for aircrafts and engines.

Lionel Burgaud
Head of Aerospace Engineering Certification & Management Department with Aeroconseil Group

SW and HW Certification: Future Challenges and User Initiatives to Address Them

JUNE 11

Lionel Burgaud is Head of the "Certification & Safety" Business Unit of Aeroconseil, a consulting company of more than 1000 aeronautical specialists. A large part of his activities is certification training and expertise at Aircraft, System, Hardware, and Software levels. He is also in charge of building and leading long-term collaborations with strategic customers, on international programs in various contexts (EASA, FAA, TCCA, JCAB, CAAC,...).

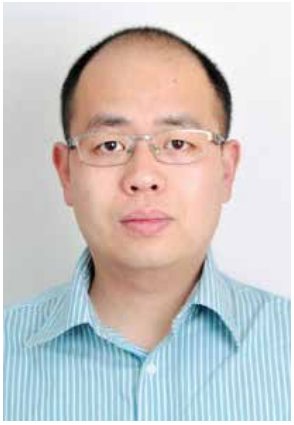
Before joining Aeroconseil, Lionel was part of the French Ministry of Defense for 12 years and was involved in military and civil aircraft program management, including certification activities. Then he has been Aerospace & Defense Manager for 8 years in a French private company for expert consulting, tools and subcontracted avionics projects.

He initiated and chairs the DO254 User Group in Europe (www.do254.com) and contributes to the equivalent User Group in US. He is also the Chairman of the "Certification Together International Conference" (www.certification-together.com).

Lionel is graduated in both Aeronautical Engineering and Business Administration.

ABSTRACT

On the software side, the presentation will introduce the transition between DO178B and DO178C documents, and the associated regulation. On the hardware side, clarifications in the DO254 context are still necessary after 10 years of experience and will be highlighted. To deal with those challenges, the Industry created some initiatives in order to identify the practical issues, share experiences and propose ways to solve the issues, in relation with Authorities. Such initiatives, like the DO254 User Group of the Forum of Aeronautical Software, will be introduced as well.



Hao Xie
TTTech China

Reducing Complexity of Advanced Integrated Systems: Impact on Certification

JUNE 11

Hao XIE leads technical activities for TTTech China. His professional focus is on advanced integrated systems, distributed embedded platform for time-, safety- and mission-critical applications in aerospace domain, especially in distributed architectures and application of AFDX, TTEthernet, TTP, A429, and 1553B for design of robust aerospace platforms. Mr Hao received a bachelor degree in Information Security Technology from Northwestern Polytechnical University.

ABSTRACT

IMA architectures target the reduction of aircraft operation and maintenance costs. They are designed to reduce electronic control unit (ECU) cost, improve the commonality of parts, minimize the number of computing modules, and reduce wiring, the number of connectors and weight. Beyond obvious weight and maintenance complexity reduction benefits, IMA supports design of new integrated functional capabilities which could not be implemented in a federated system.

IMA systems consist of DO-254 and DO-178 certifiable components and modules, which can be utilized to design a range of integrated embedded platforms according to DO-297 guidelines. IMA relies on embedded resource sharing which is essential for design of advanced integrated systems, and imposes a significant stress on system architects providing evidence on correct behavior of a huge number of interactions and interfaces in the system. In order to prevent exponential complexity increase for those critical integrated systems, different embedded platform architecture patterns can be applied. In this presentation, different approaches for minimizing system complexity and certification effort for future architectures will be presented.

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Certification of On-board Electronics in China

JUNE 11

Yan FANG
System Safety Chief Official and Associate Researcher, Technologies and Management Research Center, CAAC Airworthiness Certification Dept.

Ms. Yan Fang is the Chief Official and Associate Researcher in charge of system safety from Research Center for Technologies and Management (affiliated to Civil Aviation University of China) at CAAC Aircraft Airworthiness Certification Department. She holds a Master's Degree on Aviation Safety Management from ENAC, France, and has been working in the filed of safety evaluation, on-board software certification technological research. She is currently a representative for ARJ21-700, and a committee member on C919 Aircraft safety evaluation board. Her rich experience in airworthiness extends to multiple projects: ARJ21-700 qualification examination, Z15 qualification examination, RC's VDA certification for its on-board electronics such as communications system, navigation system and anti-collision system.

ABSTRACT

The presentation introduces the publication process of China's CTSP standards, as well as the research and launch route of CTSO standards by the Civil Aviation Administration in the short future; the speaker will review the certification progress and evidence obtained for on-board electronics, discussing key issues for airworthiness certification, and possible requirements from the authority, possibly on structural design assurance system, quality and configuration, software and hardware verification, cosmic radiation, environmental test capabilities, etc.

Process Improvement in ACTRI Context

JUNE 11

Lirong Tian
Airworthiness technical experts, AVIC Aeronautical Computing Technique Research Institute

Ms. Tian graduated from BUAA in 1987, she has been working in the aviation industry for more than 20 years and experienced in the airborne software and hardware design. She is now certification expert at ACTRI (Aeronautical Computing Technique Research Institute). In the past few years, she focuses on the certification technique and explores the way to apply standards related with electronic equipment certification (including ARP4754, ARP4761, DO178B, DO254, etc) in Chinese context.

ABSTRACT

Certification is one of the challenges of Chinese aviation companies with the development of their civil aircraft program. The presentation will introduce ACTRI successful practice in SW&AEH process improvement in the past few years. Also, the safety analysis of some special systems (such as IMA, airborne network, etc) are proposed to discuss at the end of the presentation.

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