

**17th AIAA/CEAS
Aeroacoustics Conference**
(32nd AIAA Aeroacoustics Conference)
5–8 June, 2011
The Doubletree Hotel
Portland, Oregon, USA



FINAL PROGRAM

www.aiaa.org/events/aeroacoustics



ORGANIZING COMMITTEE

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The Pennsylvania State University

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Ecole Centrale de Lyon

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SYNOPSIS

The AIAA/CEAS Aeroacoustics Conference has established itself as the premier international forum for the field of aeroacoustics. It offers scientists and engineers from industry, government, and universities an exceptional opportunity to exchange knowledge and results of current studies and to discuss directions for future research. The program's technical content will include theoretical, numerical, and experimental contributions that describe original research results and/or innovative design concepts.

American Institute of Aeronautics and Astronautics (AIAA)

AIAA is the world's largest technical society dedicated to the global aerospace profession. With more than 35,000 individual members and 90 corporate members, AIAA brings together industry, academia, and government to advance engineering and science in aviation, space, and defense. The Institute continues to be the principal voice, information resource, and publisher for aerospace engineers, scientists, managers, policymakers, students, and educators.

Council of European Aerospace Societies (CEAS)

CEAS includes the 13 leading European professional aerospace societies, representing roughly 35,000 members: Asociación de Ingenieros Aeronáuticos de España (IAIE), Asociația Aeronautică și Astronautică a României (AAAR), Association Aéronautique et Astronautique de France (3AF), Associazione Italiana di Aeronautica e Astronautica (AIDAA), Central Aerohydrodynamic Institute Russian Aerospace Society (TsAGI), Deutsche Gesellschaft für Luft- und Raumfahrt – Lilienthal-Oberth e.V. (DGLR), Finnish Society of Aeronautical Engineers (FSAE), Flygtekniska Föreningen (Swedish Society of Aeronautics and Astronautics, FTF), Hellenic Aeronautical Engineers Society (HAES), Nederlandse Vereniging voor Luchtvaarttechniek (NVvL), Polish Society of Aeronautics and Astronautics (PSAA), Royal Aeronautical Society (RAeS), and Schweizerische Vereinigung für Flugwissenschaften (Swiss Association of Aeronautical Sciences, SVFW). The Council supports the European aerospace community by promoting the highest standards of professional expertise and by facilitating the resolution of key issues that extend beyond the constraints of competitive commercial scenarios.

Connect online with AIAA



Tweeting during the Aeroacoustics Conference

Use #AIAAAERO11



Find any after-conference videos at:

www.youtube.com/wwwaiaaorg



Follow conference updates on our Facebook page:

www.facebook.com/AIAAfan



Members gain access to the AIAA LinkedIn Site at:

www.linkedin.com/companies/aiaa

SPECIAL EVENTS

Sunday, 5 June 2011

1800–1930 hrs

Welcome Reception

A networking reception will be held on Sunday evening. Tickets are included with registration where indicated. Additional tickets are available for purchase for \$65.

Monday 6 June 2011

0800–0900 hrs

Keynote Address

Dr. J. M. Seiner and Jet Noise

Presented by

Dr. C. K. W. Tam

Florida State University
Tallahassee, Florida

1000–1100 hrs

Accompanying Persons Program

Come have some coffee and meet up with other accompanying persons in the

Hawthorne Room. The hotel concierge will be there to give suggestions of where to go and what to see, and can assist with making arrangements to plan your day.

1230–1330 hrs

Networking Lunch

Lunch is included in your registration fee where indicated. Network with your fellow attendees Monday 1230–1330 hrs in the Cascade Ballroom. Additional tickets are available for \$33.

Tuesday 7 June 2011

0800–0900 hrs

Keynote Address

Aeroacoustic Scaling Principles and the Hybrid Wing Body Test

Presented by

Dr. T. F. Brooks

NASA Langley Research Center
Hampton, Virginia

1900–2200 hrs

Awards Dinner

This year's awards dinner will be in the Lloyd Center Ballroom. Tickets are included in registration where indicated. Additional tickets are available for \$75.

Wednesday 8 June 2011

0800–0900 hrs

Keynote Address

Predicting Turbomachinery Noise

Presented by

Dr. Nigel Peake

University of Cambridge
Cambridge, England

CONFERENCE INFORMATION

Conference Venue

The conference is located within walking distance of world-class entertainment, tax-free shopping at boutique shops as well as national brand stores, and Portland's renowned culinary scene, with endless dining options. Portland's MAX light rail stops just outside the hotel (Lloyd Center/NE 11th stop) and offers service to and from Portland International Airport. In addition, Portland offers a free rail zone from the hotel to the heart of downtown Portland, which will allow attendees the flexibility of great meeting space, with access to the best of Portland.

Registration and Information Center Hours

| | |
|------------------------|---------------|
| Sunday, 5 June 2011 | 1500–1900 hrs |
| Monday, 6 June 2011 | 0700–1800 hrs |
| Tuesday, 7 June 2011 | 0700–1800 hrs |
| Wednesday, 8 June 2011 | 0700–1600 hrs |

Cyber Café

The Cyber Café will feature computers with complimentary Internet access. In addition, there will be limited wireless Internet access for conference attendees using their own computers.

| | |
|------------------------|---------------|
| Sunday, 5 June 2011 | 1500–2000 hrs |
| Monday, 6 June 2011 | 0700–2000 hrs |
| Tuesday, 7 June 2011 | 0700–2000 hrs |
| Wednesday, 8 June 2011 | 0700–1700 hrs |

Networking Coffee Breaks

Refreshments will be available in the foyer daily as indicated below.

| | |
|------------------------|--------------------------------|
| Monday, 6 June 2011 | 0900–1000 hrs 1500–1600 hrs |
| Tuesday, 7 June 2011 | 0900–1000 hrs 1500–1600 hrs |
| Wednesday, 8 June 2011 | 0900–1000 hrs 1500–1600 hrs |

Committee Meetings

The following committees will be meeting during the conference:

Aeroacoustics TC

Monday, 6 June 2011
1900–2200 hrs Sellwood/Hawthorne

2012 Planning Committee

Tuesday, 7 June 2011
1200–1300 hrs Sellwood

Speakers' Practice Room

Speakers wishing to practice their presentations may do so in the Portland room located on the 2nd level. A sign-up sheet is posted on the door. In consideration of others please limit practice time to 30-minute increments.

Continued

Membership Information

Nonmembers who pay the full non-member registration fee will receive their first year's membership at no additional cost. Members who wish to renew or reinstate their membership must also pay the full nonmember registration fee.

Conference Proceedings

Proceedings for the 17th AIAA/CEAS Aeroacoustics Conference are available as online proceedings only. The cost is included in the registration fee where indicated. Attendees who have registered in advance for the online proceedings have been provided with instructions on how to access them by logging into the AIAA Web site using their e-mail address and password. Those registering on site will be provided with instructions at that time.

Employment Opportunities

AIAA assists members who are searching for employment by providing a bulletin board at technical meetings. This bulletin board is solely for "open position" and "available for employment" postings. Employers are encouraged to have personnel who are attending an AIAA technical conference bring "open position" job postings. Individual AIAA members may post "available for employment" notices. AIAA cannot assume responsibility for notices forwarded to AIAA Headquarters. AIAA reserves the right to remove inappropriate notices.

AIAA members can post and browse resumes, browse job listings, and access other online employment resources by visiting the AIAA Career Center at <http://careercenter.aiaa.org>.

Messages and Information

Messages will be recorded and posted on a bulletin board in the registration area. It is not possible to page attendees.

International Traffic in Arms Regulations

AIAA speakers and attendees are reminded that some topics discussed in the conference could be controlled by the International Traffic in Arms Regulations (ITAR). U.S. nationals (U.S. citizens and permanent residents) are responsible for ensuring that technical data

they present in open sessions to non-U.S. nationals in attendance or in conference proceedings are not export restricted by the ITAR. U.S. nationals are likewise responsible for ensuring that they do not discuss ITAR export-restricted information with non-U.S. nationals in attendance.

Conference Certificate of Attendance Available

Certificates of Attendance are available for attendees who request documentation at the conference itself. Please request your copy at the on-site registration desk. AIAA offers this service to better serve the needs of the professional community. Claims of hours or applicability toward professional education requirements are the responsibility of the participant.

Speaker's Briefing

Authors who are presenting papers, session chairs, and co-chairs will meet for a short briefing at 0700 hrs each morning in the Cascade Ballroom. Please wear your conference badge and plan to attend on the day of your session(s) only. You will sit at the table labeled with the first number of your session ID number. If your session is 5-AA-10 you would sit at table "5". Continental breakfast will be provided.

Audiovisual

Each session room will be preset with the following: one LCD projector, one screen, and one microphone and sound system (if necessitated by room size). AIAA does not provide computers or technicians to connect LCD projectors to laptop computers. Should presenters wish to use an LCD projector, it is their responsibility to bring or arrange for a computer on their own. Please note that AIAA does not provide security in the session rooms and recommends that items of value, including computers, not be left unattended. Any additional audiovisual requirements, please visit the Registration and Information Center to check availability and cost.

Restrictions

Video or audio recording of sessions, as well as the unauthorized sale of AIAA copyrighted materials, is prohibited.

"No Paper, No Podium" and "No Podium, No Paper" Policy

If a written paper is not submitted by the final manuscript deadline, authors will not be permitted to present the paper at the conference. Also, if the paper is not presented at the conference, the written paper will be withdrawn from the conference proceedings. These policies are intended to eliminate no-shows and to improve the quality of the conference for attendees.

Warning—Technology Transfer Considerations

Prospective authors are reminded that technology transfer guidelines have extended the time required for review of abstracts and completed papers by U.S. government agencies considerably. Internal (company) plus external (government) reviews can consume 16 weeks or more. Government review, if required, is the responsibility of the author. Authors should determine the extent of approval necessary early in the paper preparation process to preclude paper withdrawals and late paper submittals. The committee and AIAA will assume that all abstracts, papers, and presentations are appropriately cleared.

Journal Publication

Authors of appropriate papers are encouraged to submit them for possible publication in one of the Institute's archival journals: *AIAA Journal*; *Journal of Aircraft*; *Journal of Guidance, Control, and Dynamics*; *Journal of Propulsion and Power*; *Journal of Spacecraft and Rockets*; *Journal of Thermophysics and Heat Transfer*; or *Journal of Aerospace Computing, Information, and Communication*. You may now submit your paper online at <http://mc.manuscriptcentral.com/aiaa>.

PROGRAM-AT-A-GLANCE

| Session ID | Session Title | Start Time | Location |
|------------------|---|------------|-----------------------|
| Sunday | | | |
| 17-RCPT-01 | Welcome Reception | 1800 | Lloyd Center Ballroom |
| Monday | | | |
| 1-AA-01 | Keynote Address – Dr. J. M. Seiner and Jet Noise | 0800 | Multnomah/Holladay |
| 2-AA-02 | Jet Noise I | 0900 | Multnomah/Holladay |
| 3-AA-03 | CAA I | 0900 | Oregon |
| 4-AA-04 | General Acoustics I | 0900 | Alaska |
| 5-AA-05 | Advanced Testing Techniques I | 0900 | Idaho |
| 6-AA-06 | Duct Acoustics I | 0900 | Halsey |
| 7-AA-07 | Airframe and High Lift Noise I | 0900 | Weidler |
| 8-AA-08 | Acoustic/Fluid Dynamic Phenomena I | 0900 | Morrison/Ross Island |
| 9-LNCH-01 | Networking Lunch | 1230 | Cascade Ballroom |
| 10-AA-09 | Jet Noise II | 1330 | Multnomah/Holladay |
| 11-AA-10 | CAA II | 1330 | Oregon |
| 12-AA-11 | Open Rotor Noise | 1330 | Alaska |
| 13-AA-12 | Advanced Testing Techniques II | 1330 | Idaho |
| 14-AA-13 | Acoustic/Fluid Dynamic Phenomena II | 1330 | Halsey |
| 15-AA-14 | Airframe and High Lift Noise II | 1330 | Weidler |
| 16-AA-15 | Jet Noise – Jack Seiner Memorial Session | 1330 | Morrison/Ross Island |
| Tuesday | | | |
| 18-AA-16 | Keynote Address – Aeroacoustic Scaling Principles and the Hybrid Wing Body Test | 0800 | Multnomah/Holladay |
| 19-AA-17 | Jet Noise III | 0900 | Multnomah/Holladay |
| 20-AA-18 | CAA III | 0900 | Oregon |
| 21-AA-19 | Propeller and Rotor Noise | 0900 | Alaska |
| 22-AA-20 | Duct Acoustics II | 0900 | Idaho |
| 23-AA-21 | Acoustic/Fluid Dynamic Phenomena III | 0900 | Halsey |
| 24-AA-22 | Airframe and High Lift Noise III | 0900 | Weidler |
| 25-AA-23 | Turbomachinery and Core Noise I | 0900 | Morrison/Ross Island |
| 26-AA-24 | Jet Noise IV | 1330 | Multnomah/Holladay |
| 27-AA-25 | CAA IV | 1330 | Oregon |
| 28-AA-26 | Loads/Sonic Fatigue/Interior Noise/Structural Acoustics | 1330 | Alaska |
| 29-AA-27 | Community Noise, Metrics, and Sonic Boom | 1330 | Idaho |
| 30-AA-28 | Acoustic/Fluid Dynamic Phenomena IV | 1330 | Halsey |
| 31-AA-29 | Duct Acoustics III | 1330 | Weidler |
| 32-AA-30 | Turbomachinery and Core Noise II | 1330 | Morrison/Ross Island |
| 33-AWRDS-01 | Awards Dinner | 1900 | Lloyd Center Ballroom |
| Wednesday | | | |
| 34-AA-31 | Keynote Address – Predicting Turbomachinery Noise | 0800 | Multnomah/Holladay |
| 35-AA-32 | Jet Noise V | 0900 | Multnomah/Holladay |
| 36-AA-33 | CAA V | 0900 | Oregon |
| 37-AA-34 | Duct Acoustics IV and Advanced Testing Techniques III | 0900 | Idaho |
| 38-AA-35 | Jet Noise VI | 0900 | Halsey |

Continued

| Session ID | Session Title | Start Time | Location |
|------------|---|------------|----------------------|
| 39-AA-36 | Airframe and High Lift Noise IV | 0900 | Weidler |
| 40-AA-37 | Turbomachinery and Core Noise III | 0900 | Morrison/Ross Island |
| 41-AA-38 | Jet Noise VII | 1330 | Multnomah/Holladay |
| 42-AA-39 | Jet Noise VIII | 1330 | Oregon |
| 43-AA-40 | General Acoustics II | 1330 | Alaska |
| 44-AA-41 | Active Noise Control/Integration Effects/Flight Effects | 1330 | Halsey |
| 45-AA-42 | Benchmark Problems in Airframe Noise | 1330 | Weidler |
| 46-AA-43 | Turbomachinery and Core Noise IV | 1330 | Morrison/Ross Island |

PROGRAM-AT-A-GLANCE

| | SUNDAY | MONDAY | TUESDAY | WEDNESDAY | |
|-------------|--------------------|---------------------------------|---|---------------------------------|--------------------|
| 0800 | | Keynote Address | Keynote Address | Keynote Address | |
| 0830 | | Dr. J. M. Steiner and Jet Noise | Aeroacoustic Scaling Principles and the Hybrid Wing Body Test | Predicting Turbomachinery Noise | |
| 0900 | | Technical Sessions | Technical Sessions | Technical Sessions | |
| 0930 | | | | | |
| 1000 | | | | | |
| 1030 | | | | | |
| 1100 | | | | | |
| 1130 | | | | | |
| 1200 | | | | | |
| 1230 | | | Networking Lunch (tickets required) | Lunch on own | Lunch on own |
| 1300 | | | Technical Sessions | Technical Sessions | Technical Sessions |
| 1330 | | | | | |
| 1400 | | | | | |
| 1430 | | | | | |
| 1500 | | Registration Open | | | |
| 1530 | | 1500–1900 | | | |
| 1600 | | | | | |
| 1630 | | | | | |
| 1700 | | | | | |
| 1730 | | | | | |
| 1800 | Opening Reception | | | | |
| 1830 | (tickets required) | | | | |
| 1900 | | | Awards Dinner | | |
| 1930 | | | 1900–2200 | | |
| 2000 | | | (tickets required) | | |

Keynote Address - Dr. J. M. Seiner and Jet Noise

1-AA-1 Multnomah/Holladay

Chaired by: W. EVERSMAN, Missouri University of Science and Technology

0800 hrs Presented by: Dr. C. K. W. Tam
Florida State University
Tallahassee, Florida

Jet Noise I

2-AA-2 Multnomah/Holladay

Chaired by: D. MCLAUGHLIN

0900 hrs AIAA-2011-2700
Jet Mixing Noise from Single Stream Jets using Stochastic Source Modeling
A. Neifeld, R. Ewert, German Aerospace Center (DLR), Braunschweig, Germany

0930 hrs AIAA-2011-2701
Acoustic Investigation of Jet Mixing Noise in Dual Stream Nozzles
A. Khavaran, M. Dahl, NASA Glenn Research Center, Cleveland, OH

1000 hrs AIAA-2011-2702
Acoustics Measurements of Scale Models of Military Style Supersonic Beveled Nozzle Jets
R. Powers, M. Senft, D. McLaughlin, Pennsylvania State University, State College, PA

1030 hrs AIAA-2011-2703
Flight Effects on Supersonic Jet Noise from Chevron Nozzles
R. Schlinker, J. Simonich, R. Reba, United Technologies Research Center, E. Hartford, CT

1100 hrs AIAA-2011-2704
Effect of Nozzle Exit Conditions on Subsonic Jet Noise
K. Zaman, NASA Glenn Research Center, Cleveland, OH

1130 hrs AIAA-2011-2705
The Effect of Nozzle-to-Wing Gulley Height on Jet Flow Attachment to the Wing and Jet-Flap Interaction Noise
V. Mingle, The Boeing Company, Seattle, WA

CAA I

3-AA-3 Oregon

Chaired by: R. HIXON, University of Toledo

0900 hrs AIAA-2011-2706
Computational Aeroacoustics Prediction of Acoustic Transmission Through a Realistic 2D Stator
R. Hixon, University of Toledo, Toledo, OH

0930 hrs AIAA-2011-2707
Affordable Compressible LES of Airfoil-Turbulence Interaction in a Free Jet
H. Deniau, G. Dufour, J. Boussuge, CERFACS, Toulouse, France; C. Polacsek, ONERA, Châtillon, France; S. Moreau, University of Sherbrooke, Sherbrooke, Canada

1000 hrs AIAA-2011-2708
Broadband Fan Interaction Noise using Synthetic Inhomogeneous Non-stationary Turbulence
M. Dieste, G. Gabard, University of Southampton, Southampton, United Kingdom

1030 hrs AIAA-2011-2709
A Frequency Domain Approach for the Prediction of Tonal Noise Emitted by Rotors in Arbitrary Steady Motion
M. Gennaretti, Roma Tre University, Rome, Italy; C. Testa, INSEAN, Rome, Italy; G. Bernardini, Roma Tre University, Rome, Italy

1100 hrs AIAA-2011-2710
Application of frequency-domain linearised Euler solutions to the prediction of aft fan tones and comparison with experimental measurements
Y. Özyörük, Middle East Technical University, Ankara, Turkey; B. Tester, University of Southampton, Christchurch, United Kingdom

1130 hrs AIAA-2011-2711
A Computational Study of Airfoil Tones at Moderate Reynolds Number
C. Tam, H. Ju, Florida State University, Tallahassee, FL

General Acoustics I

4-AA-4 Alaska

Chaired by: J. MENDOZA, United Technologies Research Center

0900 hrs AIAA-2011-2712
Uncertainty Quantification for the Trailing-Edge Noise of a Controlled-Diffusion Airfoil
J. Christophe, von Kármán Institute for Fluid Dynamics, Rhode-Saint-Genèse, Belgium; S. Moreau, University of Sherbrooke, Sherbrooke, Canada; C. Hamman, J. Witteveens, G. Iaccarino, Stanford University, Stanford, CA

0930 hrs AIAA-2011-2713
Experimental assessment of the noise generated at the leading edge of porous airfoils using microphone array techniques
T. Geyer, E. Sarradj, J. Giesler, Brandenburg Technical University, Cottbus, Germany

1000 hrs AIAA-2011-2714
A Semi-Analytical Approach on the Turbulence Interaction Noise of A Low-Speed Axial Fan Including Broadband Scattering
K. Kucukcoskun, LMS International, Leuven, Belgium; J. Christophe, C. Schram, von Kármán Institute for Fluid Dynamics, Rhode-Saint-Genèse, Belgium; M. Tournour, LMS International, Leuven, Belgium

1030 hrs AIAA-2011-2715
A Background Noise Reduction Technique using Adaptive Noise Cancellation for Microphone Arrays
T. Spalt, C. Fuller, Virginia Polytechnic Institute and State University, Blacksburg, VA; T. Brooks, W. Humphreys, NASA Langley Research Center, Hampton, VA

1100 hrs AIAA-2011-2716
Direct self-noise simulation of the installed CD airfoil
S. Moreau, M. Sanjosé, University of Sherbrooke, Sherbrooke, Canada; F. Perot, M. Kim, Exa Corporation, Brisbane, CA

Advanced Testing Techniques I

5-AA-5 Idaho

Chaired by: W. HORNE

0900 hrs AIAA-2011-2717
High Resolution Acoustic Source Localization for Aeroacoustic Arrays
F. Caduda, L. Baccalá, University of São Paulo, São Paulo, Brazil

0930 hrs AIAA-2011-2718
Aeroacoustic Characterization of the NASA Ames Experimental Aero-Physics Branch 32- by 48-Inch Subsonic Wind Tunnel with a 24-Element Phased Microphone Array
B. Costanza, California Polytechnic State University, San Luis Obispo, CA; W. Horne, S. Schery, NASA Ames Research Center, Moffett Field, CA; A. Babb, University of California, Los Angeles, Los Angeles, CA

1000 hrs AIAA-2011-2719
Aeroacoustic Noise Source Identification Using Irregularly Sampled LDV Measurements Coupled with Beamforming
M. Garcia-Pedroche, G. Bennett, Trinity College Dublin, Dublin, Ireland

1030 hrs AIAA-2011-2720
A Modification to Logarithmic Spiral Beamforming Arrays for Aeroacoustic Applications
E. Arcondoulis, C. J. Doolan, L. Brooks, A. Zander, University of Adelaide, Adelaide, Australia

1100 hrs AIAA-2011-2721
Comparison of Microphone Array Measurements of an Airfoil with High-Lift Devices in Open and Closed Wind Tunnels
S. Kroeber, L. Koop, German Aerospace Center (DLR), Göttingen, Germany

1130 hrs AIAA-2011-2722
Rocket noise sources localizations through a CAA-based beam-forming technique
D. Casalino, Italian Aerospace Research Center (CIRA), Capua, Italy; S. Santini, Pisa University, Pisa, Italy; M. Genito, European Launch Vehicle, Colleferro, Italy; V. Ferrara, Avio, Colleferro, Italy

1200 hrs AIAA-2011-2723
Initial Assessment of Acoustic Source Visibility with a 24-element Microphone Array in the Arnold Engineering Development Center 80-by-120-Foot Wind Tunnel at NASA Ames Research Center
W. Horne, NASA Ames Research Center, Moffett Field, CA

Duct Acoustics I

6-AA-6

Halsey

Chaired by: H. BODEN

0900 hrs AIAA-2011-2724
Polyharmonic Distortion Modelling Applied to Acoustic Characterisation of Peforates
H. Boden, Royal Institute of Technology (KTH), Stockholm, Sweden

0930 hrs AIAA-2011-2725
The Application of an Aeroacoustic Actuator in a Zero Mass Flow Liner for Acoustic Damping
C. Lahiri, B. Pardowitz, F. Bake, L. Enghardt, German Aerospace Center (DLR), Berlin, Germany

1000 hrs AIAA-2011-2726
Numerical Investigation of Mean Flow and Liner Effects on the Mode Propagation in a Bifurcated Bypass Duct
N. Schoenwald, H. Lück, L. Panek, F. Thiele, Technical University of Berlin, Berlin, Germany

1030 hrs AIAA-2011-2727
Impedance Predictions of 3D Honeycomb Liner with Circular Apertures by DNS
Q. Zhang, D. Bodony, University of Illinois, Urbana-Champaign, Urbana, IL

1100 hrs AIAA-2011-2728
Design and Experimental Verification of "True Zero-Splice" Acoustic Liners in the Universal Fan Facility Adaptation (UFFA) Modular Rig
P. Ferrante, D. Copiello, Alenia Aermacchi S.p.A., Venegono Superiore, Italy

Airframe and High Lift Noise I

7-AA-7

Weidler

Chaired by: Y. GUO, The Boeing Company

0900 hrs AIAA-2011-2729
Aeroacoustic characteristics of externally blown flap systems
M. Pott-Pollenske, German Aerospace Center (DLR), Braunschweig, Germany; H. Friedel, Airbus, Braunschweig, Germany

0930 hrs AIAA-2011-2730
Optimization of a single slotted lined flap for airframe noise reduction
D. Casalino, M. Barbarino, Italian Aerospace Research Center (CIRA), Capua, Italy

1000 hrs AIAA-2011-2731
Aircraft Flap Side Edge Noise Modeling and Prediction
Y. Guo, The Boeing Company, Huntington Beach, CA

1030 hrs AIAA-2011-2732
Experimental investigation of broadband trailing edge noise from sharp-edged struts
D. Moreau, L. Brooks, C. J. Doolan, University of Adelaide, Adelaide, Australia

1100 hrs AIAA-2011-2733
Empirical Prediction of Flap Tip Noise
K. Rossignol, German Aerospace Center (DLR), Braunschweig, Germany

1130 hrs AIAA-2011-2734
On the Length Scales of Turbulence for Aeroacoustic Applications
M. Kamruzzaman, T. Lutz, E. Kraemer, W. Wuerz, University of Stuttgart, Stuttgart, Germany

1200 hrs AIAA-2011-2735
Aeroacoustics of a Model Non-Lifting Wing-Flap System in a Parallel Flow
B. Lemoine, M. Roger, École Centrale de Lyon, Ecully, France

Acoustic/Fluid Dynamic Phenomena I

8-AA-8

Morrison/Ross Island

Chaired by: L. MONGEAU, McGill University

0900 hrs AIAA-2011-2736
Surface Modes in sheared flow using the Modified Myers Boundary Condition
E. Brambley, University of Cambridge, Cambridge, United Kingdom

0930 hrs AIAA-2011-2737
Viscous Sources in the Curle-Lighthill Analogy
G. Gabard, C. Morfey, University of Southampton, Southampton, United Kingdom; S. Sorokin, University of Aalborg, Aalborg, Denmark

1000 hrs AIAA-2011-2738
Statistical Analysis of Acoustic-Source Field in Rough-Wall Boundary Layers
Q. Yang, M. Wang, University of Notre Dame, Notre Dame, IN

1030 hrs AIAA-2011-2739
Investigation of Low-Frequency Single Point Wall Pressure Spectrums
M. Moeller, T. Miller, J. Gallman, Spirit AeroSystems, Wichita, KS

Monday, 6 June 2011

1100 hrs AIAA-2011-2740
Aerodynamic Noise from Sparse Surface Roughness
W. Alexander, W. Devenport, Virginia Polytechnic Institute and State University, Blacksburg, VA; S. Glegg, Florida Atlantic University, Boca Raton, FL

1130 hrs AIAA-2011-2741
The Wall Pressure Spectrum of High Reynolds Number Rough-Wall Turbulent Boundary Layers
J. Forest, W. Devenport, Virginia Polytechnic Institute and State University, Blacksburg, VA

1200 hrs AIAA-2011-2742
Asymptotic modeling of boundary layers in aeroacoustics
A. Bonnet-Ben Dhia, P. Joly, L. Joubert, National Center for Scientific Research (CNRS), Paris, France

Monday Networking Lunch

9-LNCH-1 Cascade Ballroom

1230 hrs Come network with your fello attendees. Lunch is included in your registration fee where indicated. Additional tickets may be purchased for \$33 while supplies last.

Jet Noise II

10-AA-9 Multnomah/Holladay

Chaired by: **S. LELE, Stanford University**

1330 hrs AIAA-2011-2743
Axisymmetric superdirectivity in subsonic jets
A. Cavalieri, P. Jordan, National Center for Scientific Research (CNRS), Poitiers, France; T. Colonius, California Institute of Technology, Pasadena, CA; Y. Gervais, National Center for Scientific Research (CNRS), Poitiers, France

1400 hrs AIAA-2011-2744
Effects of heating on noise radiation from a two-dimensional mixing layer: direct computation and acoustic analogy predictions
A. Sharma, S. Lele, Self, Stanford, CA

1430 hrs AIAA-2011-2745
Interaction between a Flat Plate and a Circular Subsonic Jet
J. Lawrence, M. Azarpeyvand, R. Self, University of Southampton, Southampton, United Kingdom

1500 hrs AIAA-2011-2746
Intermittency of the azimuthal components of the sound radiated by subsonic jets
M. Koenig, A. Cavalieri, P. Jordan, Y. Gervais, National Center for Scientific Research (CNRS), Poitiers, France

1530 hrs AIAA-2011-2747
Investigation of high supersonic jet noise: non-linear propagation effects and flow-acoustics correlations
N. de Cacqueray, C. Bogey, C. Bailly, École Centrale de Lyon, Ecully, France

1600 hrs AIAA-2011-2748
Large Eddy Simulation of Jet Noise Suppression by Impinging Microjets
A. Najafiyazdi, P. Lew, L. Mongeau, McGill University, Montréal, Canada

1630 hrs AIAA-2011-2749
Refraction effects on far-field noise predictions and sources distribution of coplanar coaxial jet flows
C. Ilario da Silva, J. Meneghini, University of São Paulo, São Paulo, Brazil; M. Azarpeyvand, R. Self, University of Southampton, Southampton, United Kingdom

1700 hrs AIAA-2011-2750
A study of the response of a round jet to pulsed fluidic actuation
R. Maury, P. Jordan, J. Delville, J. Bonnet, National Center for Scientific Research (CNRS), Poitiers, France

CAA II

11-AA-10

Oregon

Chaired by: **R. ASTLEY, University of Southampton**

1330 hrs AIAA-2011-2751
Advanced Numerical Methods for the Prediction of Tonal Noise in Turbomachinery, Part I: Implicit Runge-Kutta Schemes
G. Ashcroft, K. Heitkamp, C. Frey, E. Kuegeler, C. Weckmueller, German Aerospace Center (DLR), Cologne, Germany

1400 hrs AIAA-2011-2752
Advanced Numerical Methods for the Prediction of Tonal Noise in Turbomachinery, Part II: Time-linearized Methods
C. Frey, H. Kersken, G. Ashcroft, E. Kuegeler, C. Weckmueller, German Aerospace Center (DLR), Cologne, Germany

1430 hrs AIAA-2011-2753
A Moving-Body High-Order Immersed Boundary Method for Computational Aeroacoustics
R. Bobenrieth Miserda, A. Maldonado, B. Gutierrez, University of Brasília, Brasília, Brazil

1500 hrs AIAA-2011-2754
An Innovative Interpolation Technique for Aeroacoustic Hybrid Methods
G. Cunha, S. Redonnet, ONERA, Châtillon, France

1530 hrs AIAA-2011-2755
Demonstration of a Multi-Dimensional Time-Accurate Local Time Stepping CESE Method
C. Yen, Jacobs, Tullahoma, TN

1600 hrs AIAA-2011-2756
Efficient parallel computing with a compact finite difference scheme for computational aeroacoustics
J. Kim, R. Sandberg, University of Southampton, Southampton, United Kingdom

1630 hrs AIAA-2011-2757
Recent Progress on Hermite Methods for Aeroacoustics
D. Appelo, M. Inkman, California Institute of Technology, Pasadena, CA; T. Hagstrom, Southern Methodist University, Dallas, TX; T. Colonius, California Institute of Technology, Pasadena, CA

Open Rotor Noise

12-AA-11

Alaska

Chaired by: **D. CASALINO, Italian Aerospace Research Center (CIRA)**

1330 hrs AIAA-2011-2758
Analytical Prediction of Wake-Interaction Noise in Counter-Rotating Open Rotors
A. Carazo, Airbus SAS, Toulouse, France; M. Roger, École Centrale de Lyon, Ecully, France; M. Omais, Airbus SAS, Toulouse, France

1400 hrs AIAA-2011-2759
Similarities of the free-field and in-duct formulations in rotor noise problems
A. Moreau, S. Guerin, German Aerospace Center (DLR), Berlin, Germany

1430 hrs AIAA-2011-2760
Initial Investigation of the Acoustics of a Counter Rotating Open Rotor Model With Historical Baseline Blades in a Low Speed Wind Tunnel
D. Elliott, NASA Glenn Research Center, Cleveland, OH

1500 hrs AIAA-2011-2761
Acoustic tests of contra-rotating propellers in the DREAM project
I. Pankratov, V. Samokhin, E. Vlasov, A. Chevagin, V. Kopiev,
TsAGI, Moscow, Russian Federation

1530 hrs AIAA-2011-2762
Open Rotor Tone Scattering
M. Kingan, R. Self, University of Southampton, Southampton,
United Kingdom

1600 hrs AIAA-2011-2763
Relative importance of open rotor tone and broadband noise sources
M. Kingan, V. Blandeau, B. Tester, P. Joseph, University of
Southampton, Southampton, United Kingdom; A. Parry, Rolls-
Royce Group plc, Derby, United Kingdom

1630 hrs AIAA-2011-2764
Empennage Noise Shielding Benefits for an Open Rotor Transport
J. Berton, NASA Glenn Research Center, Cleveland, OH

1700 hrs AIAA-2011-2765
Sensitivity Study on Computational Parameters for the Prediction of Noise Generated by Counter-Rotating Open Rotors
T. Deconinck, C. Hirsch, A. Capron, Numeca International, Brussels,
Belgium; G. Ghorbaniasl, Vrije Universiteit Brussel, Brussels,
Belgium

Advanced Testing Techniques II

13-AA-12

Idaho

Chaired by: **B. TESTER, University of Southampton**

1330 hrs AIAA-2011-2766
Microphone-Array Measurements of a Model Scale Contra-Rotating Open Rotor in a Reverberant Open Wind-Tunnel
S. Funke, H. Siller, German Aerospace Center (DLR), Berlin,
Germany

1400 hrs AIAA-2011-2767
Measurement of Phased Array Point Spread Functions for Use with Beamforming
C. Bahr, N. Zawodny, B. Bertolucci, K. Woolwine, F. Liu, J. Li, M.
Sheplak, L. Cattafesta, University of Florida, Gainesville, Gainesville,
FL

1430 hrs AIAA-2011-2768
A Frequency Domain Technique to De-Dopplerize the Acoustic Signal from a Moving Source of Sound
H. Camargo, Centers for Disease Control and Prevention,
Pittsburgh, PA; R. Burdisso, Virginia Polytechnic Institute and State
University, Blacksburg, VA

1500 hrs AIAA-2011-2769
Improved Generalized Inverse Beamforming for Jet Noise
R. Dougherty, OptiNav, Inc., Bellevue, WA

1530 hrs AIAA-2011-2770
Spatially distributed models of broadband turbomachinery and jet exhaust noise for engine source breakdown processing of phased array measurements
B. Tester, G. Gabard, University of Southampton, Southampton,
United Kingdom; S. Glegg, Florida Atlantic University, Boca Raton,
FL

1600 hrs AIAA-2011-2771
Aeroacoustic Measurements in Open-jet Wind Tunnels - An Evaluation of Methods Applied to Trailing Edge Noise
C. Bahr, J. Li, L. Cattafesta, University of Florida, Gainesville,
Gainesville, FL

1630 hrs AIAA-2011-2772
Reconstruction of Far-Field Noise Using Multireference Acoustical Holography Measurements of High-Speed Jets
P. Shah, H. Vold, M. Yang, ATA Engineering, San Diego, CA

Acoustic/Fluid Dynamic Phenomena II

14-AA-13

Halsey

1330 hrs AIAA-2011-2773
Effect of Door Configuration on Cavity Flow Modulation Process
N. Murray, B. Jansen, D. Rich, University of Mississippi, Oxford,
Oxford, MS

1400 hrs AIAA-2011-2774
Computational Modeling of Geometrically Complex Weapons Bays
C. Kannepalli, C. Chartrand, R. Birkbeck, N. Sinha, CRAFT Tech,
Pipersville, PA; N. Murray, University of Mississippi, Oxford,
Oxford, MS

1430 hrs AIAA-2011-2775
Numerical Investigation of Sound from Turbulent Flow over a Forward Facing Step
J. Slomski, Naval Surface Warfare Center, West Bethesda, MD

1500 hrs AIAA-2011-2776
Whistling of Restriction Orifices: Aeroacoustic Source Identification
J. Golliard, Delft University of Technology, Delft, Netherlands; G.
Nakiboglu, A. Hirschberg, Eindhoven University of Technology,
Eindhoven, Netherlands

1530 hrs AIAA-2011-2777
The Disturbance of a High Reynolds Number Turbulent Boundary Layer by Small Forward Steps
M. Awasthi, J. Forest, M. Morton, W. Devenport, Virginia
Polytechnic Institute and State University, Blacksburg, VA; S. Glegg,
Florida Atlantic University, Boca Raton, FL

1600 hrs AIAA-2011-2778
Flow Noise from Small Gaps in Turbulent Boundary Layers
J. Hao, M. Ji, M. Wang, University of Notre Dame, Notre Dame, IN

1630 hrs AIAA-2011-2779
Sound Generated by a Square Cylinder with a Detached Flat Plate
M. Mat Ali, C. J. Doolan, University of Adelaide, Adelaide, Australia;
V. Wheatley, University of Queensland, Brisbane, Australia

Airframe and High Lift Noise II

15-AA-14

Weidler

Chaired by: **E. MANOHA, ONERA**

1330 hrs AIAA-2011-2780
In Search of Airworthy Trailing-Edge Noise Reduction Means
M. Herr, German Aerospace Center (DLR), Braunschweig, Germany;
J. Reichenberger, EADS, Ottobrunn, Germany

1400 hrs AIAA-2011-2781
On the mechanisms of serrated airfoil trailing edge noise reduction
M. Gruber, P. Joseph, University of Southampton, Southampton,
United Kingdom

1430 hrs AIAA-2011-2782
Minimization of trailing edge noise by parametric airfoil shape modifications
R. Jones, C. J. Doolan, M. Teubner, University of Adelaide, Adelaide,
Australia

- 1500 hrs AIAA-2011-2783
Effect of Trailing Edge Blowing Geometry on Broadband Noise Sources
 J. Winkler, University of Siegen, Siegen, Germany; S. Moreau, University of Sherbrooke, Sherbrooke, Canada; T. Carolus, University of Siegen, Siegen, Germany
- 1530 hrs AIAA-2011-2784
Trailing Edge Noise Predictions Using Compressible LES and Acoustic Analogy
 W. Wolf, S. Lele, Stanford University, Stanford, CA
- 1600 hrs AIAA-2011-2785
Airfoil Trailing Edge Noise Source Location for Low to Moderate Reynolds Number
 E. Arcondoulis, C. J. Doolan, L. Brooks, A. Zander, University of Adelaide, Adelaide, Australia

Jet Noise - Jack Seiner Memorial Session

- | 16-AA-15 | Morrison/Ross Island |
|-----------------|--|
| 1330 hrs | AIAA-2011-2786 PIV Measurements of Transonic Internally-Mixed Dual-Stream Jets J. Bridges, M. Wernet, NASA Glenn Research Center, Cleveland, OH |
| 1400 hrs | AIAA-2011-2787 Supersonic jet noise simulations for chevron nozzles Y. Du, P. Morris, Pennsylvania State University, University Park, PA |
| 1430 hrs | AIAA-2011-2788 Tailored Nozzles for Jet Plume Control and Noise Reduction K. Viswanathan, P. Spalart, M. Czech, The Boeing Company, Seattle, WA; A. Garabaruk, M. Shur, New Technologies and Services, St. Petersburg, Russian Federation |
| 1500 hrs | AIAA-2011-2789 Space-Time Correlation of Flow and Acoustic Field Measurements in Supersonic Helium-Air Mixture Jets Using Optical Deflectometry C. Kuo, R. Powers, D. McLaughlin, Pennsylvania State University, University Park, PA |
| 1530 hrs | Panel Several Short Invited Talks Remembering Jack |

Keynote Address - Aeroacoustic Scaling Principles and the Hybrid Wing Body Test

18-AA-16 **Multnomah/Holladay**

Chaired by: K. BRENTNER, Pennsylvania State University

0800 hrs Presented by: Dr. T. F. Brooks
NASA Langley Research Center
Hampton, Virginia

Jet Noise III

19-AA-17 **Multnomah/Holladay**

Chaired by: M. DOTY, NASA Langley Research Center

0900 hrs AIAA-2011-2790
Aeroacoustic Experiments with Twin Jets
R. Bozak, B. Henderson, NASA Glenn Research Center, Cleveland, OH

0930 hrs AIAA-2011-2791
Investigation of Flow Conditioners for Compact Jet Engine Simulator Rig Noise Reduction
M. Doty, H. Haskin, NASA Langley Research Center, Hampton, VA

1000 hrs AIAA-2011-2792
Jet flow aeroacoustics at Re=93000: comparison between experimental results and numerical predictions
L. Bricteux, Catholic University of Leuven, Louvain la Neuve, Belgium; C. Schram, von Kármán Institute for Fluid Dynamics, Rhode-Saint-Genèse, Belgium; M. Duponcheel, G. Winckelmans, Catholic University of Leuven, Louvain la Neuve, Belgium

1030 hrs AIAA-2011-2793
Analysis of acoustic source terms of a coaxial helium/air jet
G. Geiser, S. Koh, W. Schröder, RWTH Aachen University, Aachen, Germany

1100 hrs AIAA-2011-2794
Experimental study of flight effects on screech in underexpanded jets
B. André, T. Castelain, C. Bailly, École Centrale de Lyon, Ecully, France

1130 hrs AIAA-2011-2795
Screech characteristics during Mode Change in an Underexpanding Jet
T. Jothi, Korea Advanced Institute of Science and Technology, Daejeon, Republic of Korea; K. Srinivasan, Indian Institute of Technology Madras, Chennai, India; D. Lee, Korea Advanced Institute of Science and Technology, Daejeon, Republic of Korea

CAA III

20-AA-18 **Oregon**

Chaired by: W. SCHRÖDER, RWTH Aachen University

0900 hrs AIAA-2011-2796
Galbrun based numerical scheme to compute time-harmonic scattering in an arbitrary mean flow
E. Peynaud, CERFACS, Toulouse, France; A. Bonnet-Ben Dhia, J. Mercier, National Center for Scientific Research (CNRS), Paris, France; F. Millot, S. Pernet, CERFACS, Toulouse, France

0930 hrs AIAA-2011-2797
Trailing-Edge Noise Prediction Using the Nonlinear Disturbance Equations
M. Christiansen, K. Brentner, P. Morris, Pennsylvania State University, University Park, PA

1000 hrs AIAA-2011-2798
Extension of non-reflective outlet boundary condition for vortical disturbances

L. Koloszar, N. Villedieu, H. Deconinck, von Kármán Institute for Fluid Dynamics, Rhode-Saint-Genèse, Belgium; J. Anthoine, ONERA, Maizac, France; P. Rambaud, von Kármán Institute for Fluid Dynamics, Rhode-Saint-Genèse, Belgium

1030 hrs AIAA-2011-2799
On the Development and Application of a Hybrid Approach to the Simulation of Broadband Noise in a Lobed Mixer

J. Wellner, T. Röber, German Aerospace Center (DLR), Cologne, Germany

Propeller and Rotor Noise

21-AA-19 **Alaska**

Chaired by: K. BRENTNER, Pennsylvania State University

0900 hrs AIAA-2011-2800
Quiet propellers for small UAV: Experimental analysis
L. Marino, G. Sinibaldi, University of Rome "La Sapienza", Rome, Italy

0930 hrs AIAA-2011-2801
Multidisciplinary Optimization of Propeller Blades: focus on the aeroacoustic results
B. Marinus, Royal Military Academy, Brussels, Belgium; M. Roger, École Centrale de Lyon, Ecully, France; R. Van den Braembussche, von Kármán Institute for Fluid Dynamics, Rhode-Saint-Genèse, Belgium; W. Bosschaerts, Royal Military Academy, Brussels, Belgium

1000 hrs AIAA-2011-2802
Numerical Simulation of Broadband Noise from Airfoil-Wake Interaction
A. ELTaweel, M. Wang, University of Notre Dame, Notre Dame, IN

1030 hrs AIAA-2011-2805
Acoustic Kinematics of Helicopter BVI Noise
M. Lowson, University of Bristol, Bristol, United Kingdom

Duct Acoustics II

22-AA-20 **Idaho**

Chaired by: D. NARK, NASA Langley Research Center

0900 hrs AIAA-2011-2806
The critical layer in sheared flow
M. Darau, Eindhoven University of Technology, Eindhoven, Netherlands; E. Brambley, University of Cambridge, Cambridge, United Kingdom; S. Rienstra, Eindhoven University of Technology, Eindhoven, Netherlands

0930 hrs AIAA-2011-2807
Assessment of Radiated Fan Noise Prediction Capabilities using Static Engine Test Data
D. Nark, NASA Langley Research Center, Hampton, VA

1000 hrs AIAA-2011-2808
Validation of the Predicted Circumferential and Radial Mode Sound Power Levels in the Inlet and Exhaust Ducts of a Fan Ingesting Distorted Inflow
L. Koch, NASA Glenn Research Center, Cleveland, OH

1030 hrs AIAA-2011-2809
Sound Radiation from a Semi-Infinite Annular Duct Due to a Monopole Source
M. Azarpeyvand, G. Gabard, R. Self, University of Southampton, Southampton, United Kingdom

- 1100 hrs AIAA-2011-2810
Numerical Modeling and Experimental Validation of the Acoustic Efficiency of Treated Ducts on an Aircraft Auxiliary Power System
M. Lavieille, Airbus SAS, Toulouse, France; D. Brown, Honeywell International, Inc., Phoenix, AZ; F. Vieuille, Free Field Technologies, Toulouse, France
- 1130 hrs AIAA-2011-2811
Aircraft Supplemental Cooling System Noise Propagation and Radiation: Comparisons between Acoustics Numerical Modeling and Testing
C. Paquet, M. Lavieille, Airbus SAS, Toulouse, France; W. Schuster, Honeywell International, Inc., Phoenix, AZ
- 1200 hrs AIAA-2011-2812
Mode identification in a rectangular duct using an L1 generalized inverse beam-forming approach
B. Day, T. Suzuki, C. Breard, The Boeing Company, Seattle, WA

Acoustic/Fluid Dynamic Phenomena III

23-AA-21

Halsey

Chaired by: F. MENDONCA, CD-Adapco

- 0900 hrs AIAA-2011-2813
Aeroacoustic effects of a cylinder/plate-configuration
M. Winkler, K. Becker, Cologne University of Applied Sciences, Cologne, Germany; F. Kameier, Duesseldorf University of Applied Sciences, Duesseldorf, Germany; C. J. Doolan, University of Adelaide, Adelaide, Australia; C. Paschereit, Technical University of Berlin, Berlin, Germany
- 0930 hrs AIAA-2011-2814
Examination of Sound Suppression by Water Injection at lift-off of Launch Vehicles
K. Fukuda, S. Tsutsumi, T. Shimizu, R. Takaki, Japan AeroSpace Exploration Agency (JAXA), Sagamihara, Japan; K. Ui, Japan AeroSpace Exploration Agency (JAXA), Tsukuba, Japan
- 1000 hrs AIAA-2011-2815
Scaling Laws for the Aeroacoustics of High Speed Trains
A. Lauterbach, K. Ehrenfried, S. Loose, C. Wagner, German Aerospace Center (DLR), Göttingen, Germany
- 1030 hrs AIAA-2011-2816
Effect of the fluid structure interaction on the aeroacoustic instabilities of solid rocket motors
J. Richard, CERFACS, Toulouse, France; F. Nicoud, Université Montpellier, Montpellier, France
- 0900 hrs AIAA-2011-2817
Aero-Vibroacoustic fully coupled prediction of panel impedance effects in automotive sunroof buffeting
F. Mendonca, CD-adapco, London, United Kingdom; L. Tran, A. Mueller, CD-adapco, Seattle, WA

Airframe and High Lift Noise III

24-AA-22

Weidler

Chaired by: D. LOCKARD, NASA Langley Research Center

- 0900 hrs AIAA-2011-2818
LES of Tripped Super-Critical Cylinder Flow: Toward Tandem Cylinder Noise Predictions
C. Yu, W. Wolf, S. Lele, Stanford University, Stanford, CA
- 0930 hrs AIAA-2011-2819
A parametric study of the noise radiated by the flow around multiple bodies: direct noise computation of the influence of the separating distance in rod-airfoil flow configurations
J. Berland, P. Lafon, National Center for Scientific Research (CNRS), Clamart, France; F. Crouzet, F. Daude, EDF, Clamart, France; C. Bailly, École Centrale de Lyon, Ecully, France

- 1000 hrs AIAA-2011-2820
Application of FUN3D Solver for Aeroacoustic Simulation of a Nose Landing Gear Configuration
V. Vatsa, D. Lockard, M. Khorrami, NASA Langley Research Center, Hampton, VA
- 1030 hrs AIAA-2011-2821
Computational and Experimental Study on Noise Generation from Tire-Axle Regions of a Two-Wheel Main Landing Gear
M. Murayama, Y. Yokokawa, H. Kato, H. Ura, H. Uchida, K. Yamamoto, Japan AeroSpace Exploration Agency (JAXA), Chofu, Japan; K. Abe, L. Wu, Exa Corporation, Yokohama, Japan
- 1100 hrs AIAA-2011-2822
LAGOON : CFD/CAA coupling for Landing Gear Noise and Comparison with Experimental Database
L. Sanders, E. Manoha, ONERA, Châtillon, France; S. Ben Khelil, C. Francois, ONERA, Meudon, France
- 1130 hrs AIAA-2011-2824
Flow and Noise Predictions for Tandem Cylinders in a Realistic Wind-Tunnel Configuration
G. Brès, Exa Corporation, Brisbane, CA
- 1200 hrs AIAA-2011-2823
Sound from Flow Over Sparse and Densely Packed Rough Surfaces
J. Anderson, D. Stewart, N. Chang, P. Gillett, Naval Surface Warfare Center, West Bethesda, MD

Turbomachinery and Core Noise I

25-AA-23

Morrison/Ross Island

Chaired by: H. ATASSI, University of Notre Dame

- 0900 hrs AIAA-2011-2825
Spatial Noise Source Identification of Tonal Noise in Turbomachinery Using the Coherence Function on a Modal Basis
I. Davis, G. Bennett, Trinity College Dublin, Dublin, Ireland
- 0930 hrs AIAA-2011-2826
Low and high frequency models for the prediction of noise due to cascade-turbulence interaction
G. Jenkins, C. Powles, V. Blandeau, P. Joseph, University of Southampton, Southampton, United Kingdom
- 1000 hrs AIAA-2011-2827
Indirect combustion noise: Experimental investigation of the vortex sound generation mechanism
N. Kings, K. Knobloch, F. Bake, German Aerospace Center (DLR), Berlin, Germany
- 1030 hrs AIAA-2011-2828
Sound power due to an airfoil of arbitrary stagger angle in a turbulent flow
V. Blandeau, P. Joseph, G. Jenkins, C. Powles, University of Southampton, Southampton, United Kingdom
- 1100 hrs AIAA-2011-2829
Analytical and numerical study of the Entropy Wave Generator experiment on indirect combustion noise
S. Moreau, University of Sherbrooke, Sherbrooke, Canada; I. Duran, CERFACS, Toulouse, France
- 1130 hrs AIAA-2011-2830
Experimental Investigations of Coherence Based Noise Source Identification Techniques for Turbomachinery Applications - Classic and Novel Techniques
I. Davis, G. Bennett, Trinity College Dublin, Dublin, Ireland
- 1200 hrs AIAA-2011-2831
Scattering of an Entropy Disturbance into Sound by a Linear Cascade of Turbine Blades
A. Mishra, D. Bodony, University of Illinois, Urbana-Champaign, Urbana, IL

Tuesday, 7 June 2011

Jet Noise IV

26-AA-24

Multnomah/Holladay

Chaired by: **C. BOGEY, École Centrale de Lyon**

- 1330 hrs AIAA-2011-2832
Aeroacoustics Control of a Turbulent Mach 1.3 Jet Using Adjoint-Based Optimization
J. Kim, D. Bodony, J. Freund, University of Illinois, Urbana-Champaign, Urbana, IL
- 1400 hrs AIAA-2011-2833
A Comparison between High-Order Taylor-Galerkin and Compact Schemes for Jet Noise Simulations
M. Sanjosé, University of Sherbrooke, Sherbrooke, Canada; A. Najafiyazdi, McGill University, Montréal, Canada; S. Moreau, University of Sherbrooke, Sherbrooke, Canada
- 1430 hrs AIAA-2011-2834
A Study of Mach Wave Radiation in an Axisymmetric Jet Using Active Control
M. Kearney-Fischer, J. Kim, M. Samimy, Ohio State University, Columbus, OH
- 1500 hrs AIAA-2011-2835
Wavepacket Modeling of the Jet Noise Source
D. Papamoschou, University of California, Irvine, Irvine, CA
- 1530 hrs AIAA-2011-2836
A further step towards grid-converged solutions for an initially nominally turbulent jet
C. Bogey, O. Marsden, C. Bailly, École Centrale de Lyon, Ecully, France
- 1600 hrs AIAA-2011-2837
A computational study of the effects of nozzle-exit turbulence level on the flow and acoustic fields of a subsonic jet
C. Bogey, O. Marsden, C. Bailly, École Centrale de Lyon, Ecully, France
- 1630 hrs AIAA-2011-2838
Parabolized stability equation models for predicting large-scale mixing noise of turbulent round jets
D. Rodriguez Alvarez, A. Samanta, California Institute of Technology, Pasadena, CA; A. Cavalieri, National Center for Scientific Research (CNRS), Poitiers, France; T. Colonius, California Institute of Technology, Pasadena, CA; P. Jordan, National Center for Scientific Research (CNRS), Poitiers, France
- 1700 hrs AIAA-2011-2839
Application of the Linear Parabolized Stability Equations to a Subsonic Coaxial Jet
O. Léon, J. Brazier, ONERA, Toulouse, France

CAA IV

27-AA-25

Oregon

Chaired by: **J. DELFS, German Aerospace Center (DLR)**

- 1330 hrs AIAA-2011-2840
Efficient Domain Decomposition Technique for Solution of High Amplitude Acoustic Wave Scattering in Non-Uniform Flows
B. El Hadidi, A. Hemeda, Cairo University, Giza, Egypt
- 1400 hrs AIAA-2011-2841
CFD-CAA Coupled Calculations of a Tandem Cylinder Configuration to Assess Facility Installation Effects
S. Redonnet, ONERA, Châtillon, France; D. Lockard, M. Khorrami, M. Choudhari, NASA Langley Research Center, Hampton, VA

- 1430 hrs AIAA-2011-2842
Characteristics of the Noise from Two Side-by-Side Cylinders at Low Reynolds Numbers
J. Gao, Beihang University, Beijing, China; Z. Yang, Central South University, Changsha, China; X. Li, Beihang University, Beijing, China
- 1500 hrs AIAA-2011-2843
Tandem Cylinder and Idealized Side Mirror Far-Field Noise Predictions Using DES and An Efficient Implementation of FW-H Equation
M. Caraeni, CFD/Software, Lebanon, NH
- 1530 hrs AIAA-2011-2844
Flow and geometrical effects on radiated noise from exhausts computed by a hybrid extended Fourier PSTD method
M. Hornikx, W. De Roeck, W. Desmet, Catholic University of Leuven, Leuven, Belgium
- 1600 hrs AIAA-2011-2845
Time harmonic acoustic scattering in presence of a shear flow and a Myers impedance condition
J. Mercier, A. Bonnet-Ben Dhia, National Center for Scientific Research (CNRS), Paris, France; F. Millot, CERFACS, Toulouse, France
- 1630 hrs AIAA-2011-2846
Wave Computation Using a A High Order Space-time Riemann Solver Free Method
S. Tu, Self, Madison, MS
- 1700 hrs AIAA-2011-2847
Refraction and Scattering in High Mach Number Boundary Layers
M. Siefert, J. Delfs, German Aerospace Center (DLR), Braunschweig, Germany; B. Caruelle, Airbus SAS, Toulouse, France

Loads/Sonic Fatigue/ Interior Noise/Structural Acoustics

28-AA-26

Alaska

Chaired by: **D. BODONY, University of Illinois, Urbana-Champaign**

- 1330 hrs AIAA-2011-2848
Statistical properties of pressure loadings and vibroacoustic response of a simplified sideglass induced by the flow over generic flow-deflector and side-mirror
S. Moreau, V. Vadavalli, N. Atalla, University of Sherbrooke, Sherbrooke, Canada
- 1400 hrs AIAA-2011-2849
Experimental and FEA evaluation of membrane-type locally resonant acoustic metamaterial arrays for aircraft interior sound insulation
C. Naify, University of Southern California, Los Angeles, CA; C. Chang, G. McKnight, HRL Laboratories, Malibu, CA; S. Nutt, University of Southern California, Los Angeles, CA
- 1430 hrs AIAA-2011-2850
Structural-acoustic response of an elastic plate with plane wave in a duct: Comparison of theory with numerical simulation
M. Sucheendran, D. Bodony, P. Geubelle, University of Illinois, Urbana-Champaign, Urbana, IL
- 1500 hrs AIAA-2011-2851
Transmission Loss Analysis of a Parallel-Coupled Helmholtz Resonator Network with a Green's Function Approach
D. Zhao, Nanyang Technological University, Singapore, Singapore

1530 hrs AIAA-2011-2852
Validation of Methods to Predict Vibration of a Panel in the Near Field of a Hot Supersonic Rocket Plume
P. Bremner, P. Belloch, A. Hutchings, P. Shah, ATA Engineering, San Diego, CA; C. Streett, NASA Langley Research Center, Hampton, VA; C. Larsen, NASA Johnson Space Center, Houston, TX

Community Noise, Metrics, and Sonic Boom

29-AA-27

Idaho

Chaired by: **L. LOPES, NASA Langley Research Center**

1330 hrs AIAA-2011-2853
Aircraft Noise Simulation for a Virtual Reality Environment
M. Arntzen, National Aerospace Laboratory (NLR), Amsterdam, Netherlands; H. Visser, D. Simons, Delft University of Technology, Delft, Netherlands; T. van Veen, National Aerospace Laboratory (NLR), Amsterdam, Netherlands

1400 hrs AIAA-2011-2854
Design of the Next Generation Aircraft Noise Prediction Program: ANOPP2
L. Lopes, C. Burley, NASA Langley Research Center, Hampton, VA

1430 hrs AIAA-2011-2855
The Parametric Aircraft Noise Analysis Module - status overview and recent applications
L. Bertsch, S. Guerin, G. Looye, M. Pott-Pollenske, German Aerospace Center (DLR), Braunschweig, Germany

1500 hrs AIAA-2011-2856
Sonic Boom Propagation with a Non Linear Geometrical Acoustic Model
M. Berci, University of Leeds, Leeds, United Kingdom; L. Vigevano, Technical University of Milan, Milan, Italy

1530 hrs AIAA-2011-2857
Design Methods to Create Frozen Sonic Booms via Lobe Balancing using Aircraft Components
T. Jung, R. Starkey, B. Argrow, University of Colorado, Boulder, Boulder, CO

1600 hrs AIAA-2011-2858
Spectrally Resolved Prediction of Sonic Boom Focusing
A. Pilon, Lockheed Martin Corporation, Palmdale, CA

Acoustic/Fluid Dynamic Phenomena IV

30-AA-28

Halsey

Chaired by: **V. GOLUBEV**

1330 hrs AIAA-2011-2859
On Interaction of Airfoil Leading and Trailing Edge Noise Sources in Turbulent Flow
V. Golubev, L. Nguyen, Embry-Riddle Aeronautical University, Daytona Beach, FL; M. Roger, École Centrale de Lyon, Ecully, France; M. Visbal, Air Force Research Laboratory, Wright-Patterson AFB, OH

1400 hrs AIAA-2011-2860
On the Noise and Wake flow of an Airfoil with Broken and Serrated Trailing Edges
T. Chong, Brunel University, Uxbridge, United Kingdom; P. Joseph, M. Gruber, University of Southampton, Southampton, United Kingdom

1430 hrs AIAA-2011-2861
Effect of Leading Edge Thickness on High Speed Airfoil Turbulence Interaction Noise
A. Hall, O. Atassi, J. Gilson, Pratt & Whitney, East Hartford, CT; R. Reba, D. Shannon, United Technologies Research Center, East Hartford, CT

1500 hrs AIAA-2011-2862
Effect of a turbulent incoming boundary layer on noise radiation by the flow over cylindrical cavities
J. Chicheportiche, X. Gloerfelt, Paris Institute of Technology, Paris, France

1530 hrs AIAA-2011-2863
On generation of sound in wall-bounded shear flows: source identification, mean-flow refraction, back action of sound and global acoustic coupling
X. Wu, Imperial College London, London, United Kingdom

1600 hrs AIAA-2011-2864
Sound generation by Koopman modes in shear layers
G. Song, J. Robinet, X. Gloerfelt, Paris Institute of Technology, Paris, France

Duct Acoustics III

31-AA-29

Weidler

Chaired by: **X. LI, Beihang University**

1330 hrs AIAA-2011-2865
On the Use of Experimental Methods to Improve Confidence in Educated Impedance
M. Jones, W. Watson, NASA Langley Research Center, Hampton, VA

1400 hrs AIAA-2011-2866
Investigation of Impedance Education Research on In-situ Impedance Measurement Rig
L. Wang, T. Wang, Beihang University, Beijing, China

1430 hrs AIAA-2011-2867
Implementation and Validation of an Impedance Education Technique
W. Watson, M. Jones, C. Gerhold, NASA Langley Research Center, Hampton, VA

1500 hrs AIAA-2011-2868
Two-Port Indirect Acoustic Impedance education in presence of grazing flows
L. de Santana, W. De Roeck, W. Desmet, Catholic University of Leuven, Leuven, Belgium; P. Ferrante, Alenia Aermacchi S.p.A., Venegono Superiore, Italy

1530 hrs AIAA-2011-2869
Validation of a direct propagation model for liner impedance education
J. Primus, F. Simon, E. Piot, ONERA, Toulouse, France

1600 hrs AIAA-2011-2870
Construction and Validation of A Broadband Time Domain Impedance Boundary Condition
X. Li, X. Li, Beihang University, Beijing, China; C. Tam, Florida State University, Tallahassee, FL

1630 hrs AIAA-2011-2871
Acoustic modes in a duct with slowly varying impedance and non-uniform mean flow and temperature
M. Oppeneer, National Aerospace Laboratory (NLR), Emmeloord, Netherlands; W. Lazeroms, S. Rienstra, Eindhoven University of Technology, Eindhoven, Netherlands; P. Sijtsma, National Aerospace Laboratory (NLR), Emmeloord, Netherlands; B. Mattheij, Eindhoven University of Technology, Eindhoven, Netherlands

Turbomachinery and Core Noise II

32-AA-30

Morrison/Ross Island

Chaired by: **A. SHARMA, General Electric Company**

1330 hrs AIAA-2011-2872
Analysis of the SPL Spectra Generated by Axial Flow Fans Working Under Similarity Conditions
A. Cattanei, E. Canepa, University of Genoa, Genoa, Italy

Tuesday, 7 June 2011

- 1400 hrs AIAA-2011-2873
Wall Modeled LES simulation of Rotor-Stator-Cascade Broadband Noise
 B. Greschner, F. Thiele, Technical University of Berlin, Berlin, Germany
- 1430 hrs AIAA-2011-2874
Broadband Noise Reduction Of Linear Cascades With Trailing Edge Serrations
 A. Finez, M. Jacob, M. Roger, E. Jondeau, National Center for Scientific Research (CNRS), Ecully, France
- 1500 hrs AIAA-2011-2875
Effect of CFD Wake Prediction in a Hybrid Simulation of Fan Broadband Interaction Noise
 J. Maunus, S. Grace, D. Sondak, Boston University, Boston, MA
- 1530 hrs AIAA-2011-2876
Experimental Investigation of Trailing Edge Noise from a Linear Cascade of Cambered Airfoils
 A. Finez, M. Jacob, E. Jondeau, M. Roger, National Center for Scientific Research (CNRS), Ecully, France
- 1600 hrs AIAA-2011-2877
Modeling Broadband Rotor Interaction Noise
 M. Logue, H. Atassi, University of Notre Dame, Notre Dame, IN
- 1630 hrs AIAA-2011-2878
Rotor-shielding effect on fan-OGV broadband noise prediction
 H. Posson, S. Moreau, University of Sherbrooke, Sherbrooke, Canada
- 1700 hrs AIAA-2011-2879
Separation of Broadband Noise Sources in Aeroengine Ducts with Respect to Modal Decomposition
 W. Jürgens, B. Pardowitz, U. Tapken, L. Enghardt, German Aerospace Center (DLR), Berlin, Germany

Tuesday Awards Dinner

33-AWRDS-1

Lloyd Center Ballroom

- 1900 hrs Tickets are included in the registration fee where indicated. Additional tickets may be purchased while supplies last.

Keynote Address - Predicting Turbomachinery Noise

34-AA-31

Multnomah/Holladay

Chaired by: D. JUVE, École Centrale de Lyon

0800 hrs Presented by: Dr. Nigel Peake
University of Cambridge
Cambridge, England

Jet Noise V

35-AA-32

Multnomah/Holladay

Chaired by: P. MORRIS, Pennsylvania State University

0900 hrs AIAA-2011-2880
Large Eddy Simulation and Noise Prediction of Turbulent Swirling Jets
C. Zhang, Georgia Southern University, Statesboro, GA; S. Frankel, Purdue University, West Lafayette, IN

0930 hrs AIAA-2011-2881
Large Eddy Simulation for Jets from Chevron and Dual Flow Nozzles
U. Paliath, General Electric Company, Niskayuna, NY; H. Shen, The Boeing Company, Huntington Beach, CA; R. Avancha, C. Shieh, General Electric Company, Niskayuna, NY

1000 hrs AIAA-2011-2882
Large Eddy Simulation of High Reynolds Number Jets with Microjet Injection
M. Rife, G. Page, Loughborough University, Loughborough, United Kingdom

1030 hrs AIAA-2011-2883
Large-Eddy Simulation of High-Subsonic Jet Flow with Microjet Injection
S. Enomoto, K. Yamamoto, Japan Aerospace Exploration Agency (JAXA), Chofu, Japan; K. Yamashita, Advanced Science & Intelligence Research Institute Corporation, Chiyoda, Japan; N. Tanaka, Y. Oba, T. Oishi, IHI Corporation, Mizuho, Japan

1100 hrs AIAA-2011-2884
Large-Eddy Simulations of a Supersonic Heated Jet
J. Liu, K. Kailasanath, Naval Research Laboratory, Washington, DC; N. Heeb, E. Gutmark, University of Cincinnati, Cincinnati, OH

1130 hrs AIAA-2011-2885
Simulation of Sound Radiated from Turbulent Heated Jets Using the Lattice-Boltzmann Method
K. Habibi, A. Najafiyazdi, P. Lew, L. Mongeau, McGill University, Montréal, Canada

1200 hrs AIAA-2011-2886
Unstructured Large Eddy Simulation for Prediction of Noise Issued from Turbulent Jets in Various Configurations
Y. Khalighi, Cascade Technologies, Inc., Palo Alto, CA; F. Ham, S. Lele, P. Moin, Stanford University, Stanford, CA

CAA V

36-AA-33

Oregon

Chaired by: F. HU, Old Dominion University

0900 hrs AIAA-2011-2887
A 3-D modal stochastic jet noise source model
R. Ewert, A. Neifeld, German Aerospace Center (DLR), Braunschweig, Germany

0930 hrs AIAA-2011-2888
A study based on the sweeping hypothesis to generate stochastic turbulence
A. Lafitte, Liebherr Aerospace, Toulouse, France; T. Le Garrec, ONERA, Châtillon, France; E. Laurendeau, Liebherr Aerospace, Toulouse, France; C. Bailly, École Centrale de Lyon, Ecully, France

1000 hrs AIAA-2011-2889
On the acoustic super-directivity of jittering vortex systems for the study of jet noise
P. Yakovlev, TsAGI, Moscow, Russian Federation; S. Karabasov, Cambridge University, Cambridge, United Kingdom; V. Goloviznin, Moscow Institute for Nuclear Safety, Moscow, Russian Federation

1030 hrs AIAA-2011-2890
Computational Study of Aero-acoustic Sources in Perforate Silencers
C. Pokora, G. Page, Loughborough University, Loughborough, United Kingdom

1100 hrs AIAA-2011-2891
Time Domain Wave Packet method and suppression of instability waves in aeroacoustic computation
F. Hu, Old Dominion University, Virginia Beach, VA; X. Li, X. Li, M. Jiang, Beihang University, Beijing, China

Duct Acoustics IV and Advanced Testing Techniques III

37-AA-34

Idaho

Chaired by: M. JONES, NASA Langley Research Center

0900 hrs AIAA-2011-2892
Investigation of Flow Induced Sound Generated and Radiated by an Air Conditioning Outlet
T. Biermeier, S. Becker, University of Erlangen-Nuremberg, Erlangen, Germany; P. Risch, Audi, Ingolstadt, Germany

0930 hrs AIAA-2011-2893
Simulations of Duct Whistling with Nyquist Analysis and Linearized Navier-Stokes equations
A. Kierkegaard, Royal Institute of Technology (KTH), Stockholm, Sweden

1000 hrs AIAA-2011-2894
Numerical simulation of flow-induced sound generation from an orifice in a low Mach number ducted flow
C. O'Reilly, E. Alenius, G. Efraimsson, Royal Institute of Technology (KTH), Stockholm, Sweden; D. Bodony, University of Illinois, Urbana-Champaign, Urbana, IL

1030 hrs AIAA-2011-2895
Investigation of Acoustic Treatment on Inlet Door for Auxiliary Power Unit Noise Reduction
X. Sun, Shanghai Aircraft Design Center, Shanghai, China

1100 hrs AIAA-2011-2896
Report on Recent Upgrades to the Curved Duct Test Rig at NASA Langley Research Center
C. Gerhold, M. Jones, M. Brown, B. Howerton, NASA Langley Research Center, Hampton, VA

1130 hrs AIAA-2011-2897
A New Modular Fan Rig Noise Test and Radial Mode Detection Capability
U. Tapken, R. Bauers, L. Neuhaus, German Aerospace Center (DLR), Berlin, Germany; N. Humphreys, A. Wilson, Rolls-Royce Group plc, Derby, United Kingdom; C. Stoehr, Rolls-Royce Group plc, Dahlewitz, Germany; M. Beutke, AneCom AeroTest GmbH, Wildau, Germany

Jet Noise VI

38-AA-35

Halsey

Chaired by: **D. JUVE, École Centrale de Lyon**

- 0900 hrs AIAA-2011-2898
A PIV Study of Slotted Air Injection for Jet Noise Reduction
B. Henderson, M. Wernet, NASA Glenn Research Center, Cleveland, OH
- 0930 hrs AIAA-2011-2899
Jet noise reduction by fluidic injection from a rotating plug
M. Koenig, P. Jordan, Y. Gervais, National Center for Scientific Research (CNRS), Poitiers, France
- 1000 hrs AIAA-2011-2900
Fluidic Injection Effects on Acoustics of a Supersonic Jet at Various Mach Numbers
D. Cuppoletti, M. Perrino, E. Gutmark, University of Cincinnati, Cincinnati, OH
- 1030 hrs AIAA-2011-2901
Use of Heated Helium to Simulate Surface Pressure Fluctuations on the Launch Abort Vehicle During Abort Motor Firing
J. Panda, NASA Ames Research Center, Moffett Field, CA; G. James, NASA Johnson Space Center, Houston, TX; N. Burnside, R. Fong, NASA Ames Research Center, Moffett Field, CA; V. Fogt, NASA Johnson Space Center, Houston, TX; J. Ross, NASA Ames Research Center, Moffett Field, CA
- 1100 hrs AIAA-2011-2902
Novel high control authority actuators for jet and cavity noise reduction
G. Raman, R. Ramachandran, K. Chaudhari, Illinois Institute of Technology, Chicago, IL
- 1130 hrs AIAA-2011-2903
Aeroacoustics of Swirling Exhaust Flows in High Bypass Ratio Turbofan Nozzles for Drag Management Applications
P. Shah, ATA Engineering, Inc., San Diego, CA

Airframe and High Lift Noise IV

39-AA-36

Weidler

Chaired by: **F. HUTCHESON, NASA Langley Research Center**

- 0900 hrs AIAA-2011-2904
Airframe noise reduction by suppressing near-wall turbulent structures
S. Koh, W. Schröder, M. Meinke, RWTH Aachen University, Aachen, Germany
- 0930 hrs AIAA-2011-2905
3D Computation of Broadband Slat Noise from Swept and Unswept High-Lift Wing Sections
J. Dierke, C. Appel, J. Siebert, M. Bauer, M. Siefert, R. Ewert, German Aerospace Center (DLR), Braunschweig, Germany
- 1000 hrs AIAA-2011-2906
On the Small Effect of Boundary Layer Thicknesses on Slat Noise
L. Simoes, Embraer, São José dos Campos, Brazil; D. Souza, M. Medeiros, University of São Paulo, São Carlos, Brazil
- 1030 hrs AIAA-2011-2907
Measurement of the Noise Resulting from the Interaction of Turbulence with a Lifting Surface
F. Hutcherson, T. Brooks, C. Burley, NASA Langley Research Center, Hampton, VA; D. Stead, Lockheed Martin Corporation, Hampton, VA

- 1100 hrs AIAA-2011-2908
Slat Noise Reduction using Leading Edge Strips
P. Chen, X. Zhang, D. Angland, University of Southampton, Southampton, United Kingdom
- 1130 hrs AIAA-2011-2909
The effect of slat serrations on narrowband slat noise
V. Kopiev, M. Zaitsev, I. Belyaev, TsAGI, Moscow, Russian Federation; M. Mironov, Andreev Acoustic Institute, Moscow, Russian Federation
- 1200 hrs AIAA-2011-2910
The Variation of Slat Noise with Mach and Reynolds Numbers
D. Lockard, M. Choudhari, NASA Langley Research Center, Hampton, VA

Turbomachinery and Core Noise III

40-AA-37

Morrison/Ross Island

Chaired by: **W. SCHUSTER, Honeywell International**

- 0900 hrs AIAA-2011-2911
Feasibility of using Single Mode Rings for characterization of Turbine Tone Noise
A. Serrano, Industria de Turbo Propulsores, San Fernando de Henares, Spain
- 0930 hrs AIAA-2011-2912
Full-Scale Turbofan-Engine Turbine-Transfer Function Determination Using Three Internal Sensors
L. Hultgren, NASA Glenn Research Center, Cleveland, OH
- 1000 hrs AIAA-2011-2913
Prediction of Noise Source for an Aeroengine Combustor
Y. Liu, A. Dowling, N. Swaminathan, T. Dunstan, University of Cambridge, Cambridge, United Kingdom
- 1030 hrs AIAA-2011-2914
The effect of entropy wave dissipation and dispersion on thermoacoustic instability in a model combustor
A. Morgans, C. Goh, Imperial College London, London, United Kingdom
- 1100 hrs AIAA-2011-2915
Validation of an integrated acoustic absorber in a turbine exit guide vane
D. Broszat, MTU Aero Engines GmbH, Munich, Germany; U. Tapken, L. Enghardt, German Aerospace Center (DLR), Berlin, Germany; D. Lengani, A. Marn, Graz University of Technology, Graz, Austria

Jet Noise VII

41-AA-38

Multnomah/Holladay

Chaired by: **S. MILLER, NASA Langley Research Center**

- 1330 hrs AIAA-2011-2916
Physical sources of sound in laminar and turbulent jets
S. Sinayoko, University of Southampton, Southampton, United Kingdom; A. Agarwal, University of Cambridge, Cambridge, United Kingdom; R. Sandberg, University of Southampton, Southampton, United Kingdom
- 1400 hrs AIAA-2011-2917
Computational Study of Effects of Near-wall Turbulent Structure on Aeroacoustic Fields of a Supersonic Jet Impinging on an Inclined Plate
T. Nonomura, K. Fujii, Japan Aerospace Exploration Agency (JAXA), Sagami, Japan

- 1430 hrs AIAA-2011-2918
DNS of fully turbulent jet flows in flight conditions including a canonical nozzle
R. Sandberg, N. Sandham, University of Southampton, Southampton, United Kingdom; V. Suponitsky, General Fusion, Inc., Burnaby, Canada
- 1500 hrs AIAA-2011-2919
High-fidelity large-eddy simulation for supersonic rectangular jet noise prediction
J. Nichols, F. Ham, S. Lele, Stanford University, Stanford, CA
- 1530 hrs AIAA-2011-2920
Influence of a Numerical Boundary Layer Trips on Spatio-Temporal Correlations within LES of a Subsonic Jet
C. Pokora, W. McMullan, G. Page, J. McGuirk, Loughborough University, Loughborough, United Kingdom
- 1600 hrs AIAA-2011-2921
Simulation of Compressible Jet Flow with Turbulent Nozzle Boundary Layer
S. Buehler, L. Kleiser, Swiss Federal Institute of Technology Zurich, Zurich, Switzerland
- 1630 hrs AIAA-2011-2922
Numerical Study on Acoustic Radiation from a Supersonic Jet Impinging to an Inclined Plate
S. Tsutsumi, R. Takaki, Japan Aerospace Exploration Agency (JAXA), Sagami-hara, Japan; Y. Nakanishi, K. Okamoto, University of Tokyo, Chiba, Japan; S. Teramoto, University of Tokyo, Tokyo, Japan
- 1700 hrs AIAA-2011-2923
The Prediction of Broadband Shock-Associated Noise Including Propagation Effects
S. Miller, NASA Langley Research Center, Hampton, VA; P. Morris, Pennsylvania State University, University Park, PA

Jet Noise VIII

42-AA-39

Oregon

Chaired by: A. LYRINTZIS

- 1330 hrs AIAA-2011-2924
Revisions to Ribners's Self and Shear Noise Model
W. Richarz, Aercoustics Engineering, Toronto, Canada
- 1400 hrs AIAA-2011-2925
Semi Empirical Jet Noise Modelling for Cabin Noise Predictions — Acoustic Loads in the Geometric Near Field
A. Bassetti, S. Guerin, German Aerospace Center (DLR), Berlin, Germany
- 1430 hrs AIAA-2011-2926
Far-Field filtering for the study of jet noise: Mach and temperature effects
M. Koenig, A. Cavalieri, P. Jordan, J. Delville, Y. Gervais, National Center for Scientific Research (CNRS), Poitiers, France; D. Papamoschou, University of California, Irvine, Irvine, CA
- 1500 hrs AIAA-2011-2927
Reformulation of Acoustic Entropy Source Terms
S. Koh, G. Geiser, W. Schröder, RWTH Aachen University, Aachen, Germany
- 1530 hrs AIAA-2011-2929
Computation of the noise of initially laminar jets using a statistical approach for the acoustic analogy: application and discussion
S. Karabasov, Cambridge University, Cambridge, United Kingdom; C. Bogey, École Centrale de Lyon, Ecully, France; T. Hynes, Cambridge University, Cambridge, United Kingdom

General Acoustics II

43-AA-40

Alaska

Chaired by: S. RIENSTRA, Eindhoven University of Technology

- 1330 hrs AIAA-2011-2930
Linearised Divergence Equations for Sound Propagation
X. Zhang, X. Chen, University of Southampton, Southampton, United Kingdom
- 1400 hrs AIAA-2011-2931
Normal Incidence Impedance Measurement at Elevated Temperatures
D. Burd, W. Eversman, Missouri University of Science and Technology, Rolla, MO
- 1430 hrs AIAA-2011-2932
Investigation of the aerodynamic field in a standing wave thermoacoustic refrigerator using Time-Resolved Particle Image Velocimetry
G. Poignand, National Center for Scientific Research (CNRS), Le Mans, France; E. Jondeau, P. Blanc-benon, National Center for Scientific Research (CNRS), Ecully, France
- 1500 hrs AIAA-2011-2933
Predictions of the unsteady acoustic sources and self-noise of a Katana blade at Zero and High Angle of Attack
S. Moreau, M. Sanjosé, L. Corriveau, University of Sherbrooke, Sherbrooke, Canada; J. Christophe, von Kármán Institute for Fluid Dynamics, Rhode-Saint-Genèse, Belgium; M. Roger, National Center for Scientific Research (CNRS), Ecully, France
- 1530 hrs AIAA-2011-2934
Air conditioning system noise measurement and characterization for aircraft ground operations
J. Chappuis, B. François, P. Matthieu, Airbus SAS, Toulouse, France
- 1600 hrs AIAA-2011-2935
Aeroacoustics prediction of simplified and production automotive HVAC ducts and registers
F. Perot, M. Meskine, Exa Corporation, Brisbane, CA; S. Vergne, PSA Peugeot-Citroën, Velizy-Villacoublay, France; F. Gille, Exa Corporation, Brisbane, CA
- 1630 hrs AIAA-2011-2936
Wavenumber-Frequency Analysis of the Wall Pressure Fluctuations in the Wake of a Car Side Mirror
F. Vanherpe, D. Baresch, PSA Peugeot-Citroën, Velizy-Villacoublay, France; P. Lafon, EDF, Clamart, France; M. Bordji, PSA Peugeot-Citroën, Velizy-Villacoublay, France

Active Noise Control/Integration Effects/Flight Effects

44-AA-41

Halsey

Chaired by: D. STEPHENS, NASA Glenn Research Center

- 1330 hrs AIAA-2011-2937
Incorporating Actuation Effects in Reduced-Order Models for Feedback Control of Axisymmetric Jets
A. Sinha, A. Serrani, M. Samimy, Ohio State University, Columbus, OH
- 1400 hrs AIAA-2011-2938
Simulations of Pulsed Actuators for High-Speed Flow Control
A. Uzun, Florida State University, Tallahassee, FL; J. Solomon, W. Oates, ; M. Hussaini, F. Alvi, Florida State University, Tallahassee, FL
- 1430 hrs AIAA-2011-2939
Resonance-Enhanced High-Frequency Micro-Actuators with Active Structures
P. Kreth, J. Solomon, F. Alvi, W. Oates, Florida State University, Tallahassee, FL

1500 hrs AIAA-2011-2940
Acoustic Shielding for a Model Scale Counter-rotation Open Rotor
D. Stephens, E. Envia, NASA Glenn Research Center, Cleveland, OH

1530 hrs AIAA-2011-2941
Numerical simulation of broadband aft fan noise radiation for turbofan with scarfed nozzle
D. Mincu, E. Manoha, G. Reboul, S. Redonnet, ONERA, Châtillon, France; S. Pascal, Snecma, Moissy-Cramayel, France

1600 hrs AIAA-2011-2951
On the Linearity of Turbomachinery Interaction Noise. Part I: 2D Analysis
J. Fernandez Aparicio, A. Serrano, R. Vázquez, Industria de Turbo Propulsores, San Fernando de Henares, Spain

Benchmark Problems in Airframe Noise

45-AA-42

Weidler

Chaired by: M. CHOUDHARI

1330 hrs AIAA-2011-2942
Adaptive Computation of Aeroacoustic Sources for a Rudimentary Landing Gear Using Lighthill's Analogy
R. Vilela de Abreu, N. Jansson, J. Hoffman, Royal Institute of Technology (KTH), Stockholm, Sweden

1400 hrs AIAA-2011-2943
Tandem Cylinder Flow Simulations using Sixth Order Compact Scheme
T. Imamura, Japan Aerospace Exploration Agency (JAXA), Chofu, Japan; T. Hirai, Ryoyu Systems Company, Ltd., Minato, Jamaica; S. Enomoto, K. Yamamoto, Japan Aerospace Exploration Agency (JAXA), Chofu, Japan

1430 hrs AIAA-2011-2944
Applications of the CEDRE unstructured flow solver to landing gear unsteady flow and noise predictions
F. Vuillot, F. Houssen, E. Manoha, S. Redonnet, ONERA, Châtillon, France

1500 hrs Open Discussion
BANC II Workshop and Problems
M. Choudhari, NASA Langley Research Center, Hampton, VA

Turbomachinery and Core Noise IV

46-AA-43

Morrison/Ross Island

Chaired by: D. SUTLIFF, NASA Glenn Research Center

1330 hrs AIAA-2011-2946
Investigation of engine tones in flight
H. Siller, M. Drescher, German Aerospace Center (DLR), Berlin, Germany

1400 hrs AIAA-2011-2947
Large-Eddy Simulation of a rotor tip-clearance flow
A. Cahuzac, J. Boudet, M. Jacob, École Centrale de Lyon, Ecully, France

1430 hrs AIAA-2011-2948
Modeling of Installation Effects on the Noise from Subsonic Axial Fans
F. Conte, Centrale Innovation, Ecully, France; M. Roger, École Centrale de Lyon, Ecully, France; S. Moreau, University of Sherbrooke, Sherbrooke, Canada; P. Caule, SAFRAN Group, Blagnac, France

1500 hrs AIAA-2011-2949
Multi-Disciplinary Multi-Objective Optimisation of Bypass OGV for Low Interaction Tone Noise
D. Giacche, L. Xu, University of Cambridge, Cambridge, United Kingdom; J. Coupland, Rolls-Royce Group plc, Derby, United Kingdom

1530 hrs AIAA-2011-2950
Multi-Disciplinary Optimisation of a Transonic Fan for Low Tone Noise
A. Wilson, R. Stieger, J. Coupland, N. Smith, N. Humphreys, Rolls-Royce Group plc, Derby, United Kingdom

Wednesday, 8 June 2011

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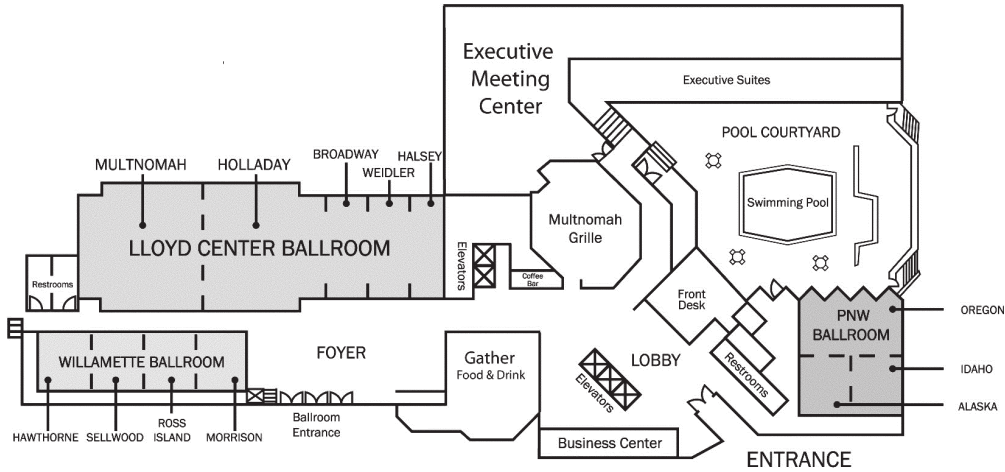
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