

This conference aims to provide an open discussion platform for scientists interested in the field of aeroacoustics and noise reduction as well as an opportunity to share and discuss some of the results generated within the DJINN and ENODISE projects with a wider scientific audience. Therefore, the key ambition is tied to the provision of advanced tools for coupled aerodynamics-aeroacoustics to enable design optimisation in future industrial environments and to reach a new level of noise reduction through highly collaborative effort – with the main innovative objectives targeting industrial needs.

DJINN (Decrease Jet Installation Noise) is a project funded by the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 861438. The project aims to develop a new generation of reliable computational fluid dynamics (CFD) technologies for assessing promising noise-reduction technologies, with support and validation from reduced-scale experiments. It is a collaboration between CFD Berlin (coordinator), AIRBUS, Dassault, SAFRAN, RRD, ONERA, DLR, SOTON, CERFAQS, ICL, VKI, CNRS, and QMUL.

ENODISE (ENabling Optimized DISruptiveE airframe propulsion Integration Concepts) is a project funded by the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 860103. The project aims to reduce aircraft gaseous and noise emissions by improving the integration of the propulsion system with the airframe. It focuses on investigating the main propulsion airframe integration issues at low TRL and on building a solid basis of knowledge and methods based on simplified but representative configurations, permitting the assessment of a variety of integration concepts. It is a collaboration between VKI (coordinator), DLR, ECL, TU Delft, GPUP, NLR, ONERA, PVS, RWTH, Siemens, Bristol University, UNIROMA 3, and U. Twente.

THIS CONFERENCE IS ORGANIZED WITH THE SUPPORT OF:



Conference Host
EU project DJINN



Conference Host
EU project ENODISE



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ECCOMAS
Industrial Interest Group



Organizing Committee

W. Haase, (DJINN), CFD-Software GmbH, DE
 U. Michel, (DJINN), CFD-Software GmbH, DE
 M. T. Ramandi, (ENODISE), von Karman Institute for Fluid Dynamics, BE
 Ch. Schram, (ENODISE), von Karman Institute for Fluid Dynamics, BE
 F. Thiele, (DJINN), CFD-Software GmbH, DE

REGISTRATION

Please register via EVENTBRITE through the DJINN website (djinn.online) or the ENODISE website (vki.ac.be/index.php/about-enodise). For quick access, you can use the QR Code below, which will guide you to the DJINN website :



Deadline for registrations: 12 November 2023

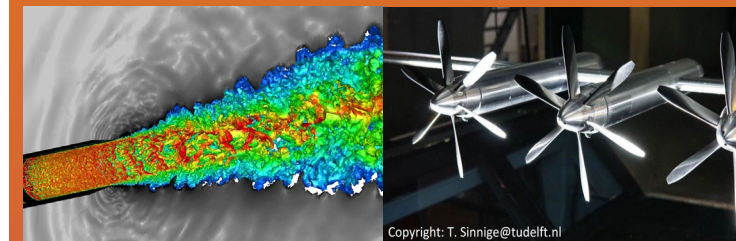
Registration fees: EUR 450 per participant
 (They cover coffee breaks, lunches, the conference dinner on 23/11 and a digital book of abstracts)

Venue:
 HdW/bbw - Bildungswerk der Wirtschaft in Berlin und Brandenburg, Am Schillertheater 2, 10625 Berlin

THE DJINN - ENODISE CONFERENCE



Aeroacoustic Installation Effects in Conventional and New Aircraft Propulsion Systems

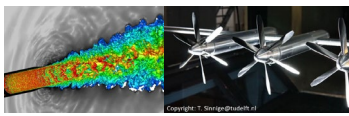


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22 - 24 November 2023
 Berlin, Germany



PROGRAMME



22 NOVEMBER 2023

- 08:30 Registration
09:00 Welcome
Werner Haase (CFD) & Christophe Schram (VKI)
09:10 **Keynote: Passive strategies for reducing jet installation noise - Leandro Rego (Capgemini Engineering, FR) - Chair: J. Christophe (VKI, BE)**

Session 1 - Chairman: J. Christophe (VKI, BE)

- 09:50 Control of free and installed jets and their sound - *D. Audiffred (ITA, BR), M. Mancinelli (Uniroma 3, IT), U. Karban (METU, TU), A. V.G. Cavalieri (ITA, BR), E. Martini (ENSMA, FR), I. Maia (ITA, BR), P. Jordan* (Institute Pprime, FR)*
10:15 Flexible trailing edge as a passive noise reduction device for installed jet noise - *M. Mancinelli* (Uniroma 3, IT), P. Jordan (Institute Pprime, FR), M. Nilton (UFSJ, BR), A. V.G. Cavalieri (ITA, BR), A. Lebedev (Institute Pprime, FR)*

10:40 Coffee

Session 2 - Chairman: L. Rego (Capgemini Engineering, IT)

- 11:10 Noise generation by cylinders in turbulent flow - *T. Geyer*, L. Enghardt (DLR, Cottbus, DE), A. Lucius, M. Schneider (ebm-papst Muldingen GmbH, DE)*
11:35 Isolated jet noise cross-comparison in various EU small and mid-size test facilities and geometric far-field - *C. Jente* (DLR, Braunschweig, DE), H. Siller (DLR, Berlin, DE), J. Christophe (VKI, BE), J. Lawrence (Southampton, UK)*
12:00 Preliminary investigations of jet installation noise influenced by a vortex-generating liner at the nozzle inner wall - *H. Siller*, W. Hage, A. Bassetti (DLR, Berlin, DE)*

12:25 Lunch

Session 3 - Chairman: R. Ewert (DLR, DE)

- 13:40 A RANS-based reduced-order model for jet-surface interaction noise - *F. de Souza* (U. Southampton, UK/UFU, BR), J. Lawrence (U. Southampton, UK)*
14:05 Assessment of jet flap interaction in the Odin Cleansky2 project - *G. Page*, H. Xia, A. Barnes (U. Loughborough, UK)*
14:30 On the noise sources of jet and wing interactions: a LES-RANS study - *Z.N. Wang* (U. Birmingham, UK), J. Tyacke (Brunel U., UK), P. Tucker (Cambridge, UK)*

- 14:55 Experimental installed jet databases including noise mitigation - *J. Christophe* (VKI, BE), C. Jente (DLR, Braunschweig, DE), H. Siller (DLR, Berlin, DE), J. Lawrence (U. Southampton, UK)*

15:20 Coffee

Session 4 - Chairman: D. Lindblad (CFD-Berlin, DE)

- 15:50 High-fidelity flow and noise simulation of a double-stream jet installed in a T-tail configuration - *F. Sartor, M. Huet*, T. Renaud, F. Gand (ONERA, FR)*

- 16:15 Robust regularization of the boundary integral method for noise scattering - *D. Lindblad*, M. Höchel, U. Michel (CFD-Berlin, DE), H. Xia (U. Loughborough, UK)*
16:40 Toward realistic jet-installation noise prediction using LBM - *G. Daviller*, F. Renard, E. Charles, J. F. Bousuge (CERFACS, FR)*
17:05 Compressible Large Eddy Simulation of UHBR jet installation noise using Octree-Cartesian grids: wind tunnel vs. free-flying aircraft comparison - *J. Dierke, M. Mößner, R. Ewert* (DLR, DE)*

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- 09:00 **Keynote: Community Noise Impact of Urban Air Mobility Vehicle Operations - Doug Boyd (NASA Langley Research Center, US) - Chair: Ch. Schram (VKI, BE)**

Session 5 - Chairman: Ch. Schram (VKI, BE)

- 09:40 Experimental investigation of the noise emitted by two different propellers ingesting a planar boundary layer - *M. Falsi* (Uniroma3, IT), I. Zaman (Bristol, UK), M. Mancinelli, S. Meloni (Uniroma3, IT), B. Zang (Bristol, UK), R. Camussi (Uniroma3, IT), M. Azarpeyvand (Bristol, UK)*
10:05 Acoustic interference between three distributed propellers - *T. Lade*, S. Guerin (DLR, Berlin, DE)*
10:30 Numerical analysis of tonal noise emissions from shrouded and unshrouded contra-rotating propellers - *J. E. Barker*, A. Zarri, J. Christophe, Ch. Schram (VKI, Belgium)*

10:55 Coffee

Session 6 - Chairman: H. Siller (DLR, DE)

- 11:25 Experimental aeroacoustic assessment of coaxial drone propellers - *E. Gallo*, J. De Decker, P. Haezebrouck, Ch. Schram (VKI, BE)*
11:50 Experimental acoustic characterisation of the propeller BLI configuration for zero and adverse pressure gradient boundary layers - *I. Zaman* (Bristol, UK), M. Falsi (Uniroma3, IT), F. Ahmed, B. Zang, M. Azarpeyvand (Bristol, UK)*
12:15 Aeroacoustics of stacked UAV rotors - progress on computational and experimental study - *A. Sieradzki, P. Kekus-Kumor*, W. Klimczyk (Lukasiewicz Research Network, PL)*

12:40 Lunch

- 13:55 **Keynote: The contributions of H2020 projects DJINN and ENODISE to EU-funded aviation noise research - Dr. Leonidas Siozos-Rousoulis (CINEA, EU Commission) - Chair: F. Thiele (CFD-Berlin, DE)**

Session 7 - Chairman: A. Zarri (VKI, BE)

- 14:20 Experimental investigation of the influence of boundary layer ingestion on turbo-fan noise generation - *U. Tapken*, R. Meyer, L. Klähn, M. Behn (DLR, Berlin, DE)*
14:45 Numerical investigation of propeller-airfoil interaction noise based on large-eddy simulation and FW-H method - *Z. Yang*, M. Meinke, W. Schröder (RWTH, DE)*
15:10 Fast non-empiric rotor noise prediction model for installed propulsors - *A. Franco*, S. M. Alavi Moghadam, M. Mößner, J. Dierke, R. Ewert, J. W. Delfs (DLR Braunschweig, DE)*

- 15:35 Noise emissions from installed propeller-wing configurations using mid-fidelity unsteady panel method coupled to FW-H equation-based solver - *J. Manghni*, R. Ewert, J. Delfs, V. Domogalla (DLR Braunschweig, DE)*

16:00 Coffee

Session 8 - Chairman: D. Boyd (NASA LARC, USA)

- 16:30 Analytical study of the unsteady aerodynamic noise radiated by distributed electric propulsion systems - *D. Acevedo-Giraldo*, M. Roger, M. Jacob (ECL, FR), S. Le Bras (Siemens, FR), K. Kucukcoskun (Siemens, BE)*
16:55 Numerical investigation of propeller boundary layer ingestion noise using CABARET on rotating meshes - *H. A. Abid, A. Markesteijn, I. Solntsev, S. A. Karabasov (GPUP, UK)*
17:20 Boundary layer ingested ducted fans: an experimental aeroacoustics study - *F. Ahmed*, I. Zaman, D. Rezgui, M. Azarpeyvand (U. Bristol, UK)*
17:45 Post-test noise predictions for a low-speed fan stage with inflow distortion - *L. Klähn*, R. Meyer, L. Caldas, S. Guérin, U. Tapken (DLR Berlin, DE)*
19:30 Conference dinner

24 NOVEMBER 2023

- 09:00 **Keynote: Continuous adjoint in shape optimization, with applications in aeroacoustics - Kyriakos Giannakoglou (NTUA, GR) - Chair: W. Haase (CFD-Berlin, DE)**

Session 9 - Chairman: W. Haase (CFD-Berlin, DE)

- 09:40 A semi-automatic toolchain with large eddy simulations accelerated on graphics processing units for rapid modelling of jet installation noise - *A. Markesteijn, S. Karabasov* (GPUP, UK)*
10:05 Reduced order modelling of a Reynolds number 106 jet flow using machine learning approaches - *A. R. Murali* (ECL, FR), V. Gryazev, A. Markesteijn (QMUL, UK), S. E. Naghibi (UEL, UK), V. Toropov (QMUL, UK), M. Jacob (ECL, FR), S. Karabasov (QMUL, UK), V. Riabov (FUH, JP)*

10:30 Coffee

Session 10 - Chairman: S. Karabasov (GPUP, UK)

- 11:00 Hybrid LES-RANS of flight effects on installed jet noise including fuselage - *J. C. Tyacke* (Brunel, UK), Z. N. Wang (Birmingham, UK), P. G. Tucker (Cambridge, UK)*
11:25 Noise radiation of an aircraft wing next to an engine jet using the curle integral and results of a scale-resolving simulation - *U. Michel*, D. Lindblad, M. Höchel (CFD-Berlin, DE)*
11:50 Numerical investigation of jet noise sources with a virtual microphone array technique - *H. Demontis*, M. Huet (ONERA, FR)*
12:15 Source localization and far-field extrapolation for wind-tunnel measurements of jet installation noise - *A. Bassetti*, S. Oertwig, H. Siller (DLR, DE)*
12:40 Farewell lunch