3rd Symposium on Hybrid RANS-LES Methods

10-12 June 2009, Mercure Hevelius Hotel, Gdansk, Poland

Programme

Tuesday, 09 June 2009 18:00-20:00 Early Registration		
Wednesday, 10 June 2009 - morning sessions		
08:00 – 09:00	**Registration**	
09:00 – 09:10	**Welcome (P. Doerffer, W. Haase, S.-H. Peng)**	
09:10 – 10:00	**Keynote I (Chairperson: W. Haase**, EADS-MAS, Germany **)** ***P. Spalart*** (*Boeing Commercial Airplanes, USA*) **Reflections on RANS Modelling**	
10:00 – 10:20	**Coffee break**	
10:20 – 12:00	**Session 1 (Chairperson: M. Strelets,** NTS, Russia**)**	
10:20 – 10:45	*F. Menter, A. Garbaruk, P. Smirnov* (*ANSYS, Germany; NTS, Russia*) Scale adaptive simulation with artificial forcing	
10:45 – 11:10	*B. Chaouat* (*ONERA, France*) A new partially integrated transport modeling (PITM) method for continuous hybrid non-zonal RANS/LES simulations	
11:10 – 11:35	*Atabak Fadai-Ghotbi, Christophe Friess, Rémi Manceau, Thomas Gatski, Jacques Borée* (*Université de Poitiers, France*) A hybrid RANS-LES model based on temporal filtering	
11:35 – 12:00	*J. C. Kok and Harmen van der Ven* (*National Aerospace Laboratory NLR, The Netherlands*) Destabilizing free shear layers in X-LES using a stochastic subgrid-scale model	
12:00 – 13:30	**Lunch**	

Wednesday, 10 June 2009 - afternoon sessions

13:30 – 14:20	**Keynote II (Chairperson: P. Doerffer,** IMP PAN, Poland**)**
	M. Sillén, E. Amundsson, I. Persson, M. Säterskog (*Saab Aerosystems, Sweden*)
	Flow Modelling in Aircraft Design - an Engineering Perspective
14:20 – 15:35	**Session 2 (Chairperson: J. Kok**, NLR, The Netherlands**)**
14:20 – 14:45	*V. Brunet and S. Deck* (*ONERA, France*) Zonal-detached eddy simulation of a civil aircraft engine-jet configuration
14:45 – 15:10	*A. Garbaruk, S. Leicher, C. Mockett, P. Spalart, M. Strelets, F. Thiele* (*New Technologies and Services, Russia; EADS Military Air Systems, Germany; Technical University of Berlin, Germany; Boeing Commercial Airplanes, USA*) Evaluation of time-sample and span-size effects in DES of nominally 2D airfoils beyond stall
15:10 – 15:35	*P. Spalart, M. Shur, M. Strelets, A. Travin* (*Boeing Commercial Airplanes, USA; NTS, Russia*) Initial RANS and DDES of a rudimentary landing gear
15:35 – 16:00	**Coffee break**
16:00 – 17:15	**Session 3 (Chairperson: C. Mockett**, TU Berlin, Germany**)**
16:00 – 16:25	*G. Barbut , M. Braza, Y. Hoarau, J. Vos* (*IMFT, France ; IMFT Strasbourg, France ; CFS Engineering, Switzerland*) Prediction of transonic buffet around a wing with flap
16:25 – 16:50	*J.-C. Huang, E. Benard, G. Barakos, G. Barbut, Y. Hoarau, M. Braza* (*Queen's University of Belfast,UK; University of Liverpool, UK; University of Glasgow, UK; IMFT, France*) Experimental and numerical investigation of transonic bump flow
16:50 – 17:15	*T. Favre, B. Diedrichs and G. Efraimsson* (*KTH, Sweden*) Detached-eddy simulations applied to unsteady crosswind aerodynamics of ground vehicles

19:00	**Boat Tour**

Thursday, 11 June 2009 - morning sessions

08:30 – 09:20	**Keynote III (Chairperson: S.-H. Peng**, FOI, Sweden**)** **S. Fu, *Z.X. Xiao, J.B. Huang, Y.F. Zhang*** (*Tsinghua University, China*) **Investigation of Practical Flow Control Methodologies with RANS/LES Hybrid Methods**
09:20 – 10:35	**Session 4 (Chairperson: L. Davidson**, Chalmers University of Technology, Sweden**)**
09:20 – 09:45	***D. Borello, G. Delibra, K. Hanjalic and F. Rispoli*** (*Sapienza Università di Roma, Italy*) Scrutinizing a seamless hybrid LES/RANS approach for turbomachinery applications
09:45 – 10:10	***E. Tuliszka-Sznitko, A. Zielinski, W. Majchrowski*** (*Poznan University of Technology, Poland*) LES of the non-isothermal flow in rotating cavity
10:10 – 10:35	***F. Brännström, D. Müller*** (*RWTH Aachen, E.ON Energy Research Center, Germany*) Evaluation of hybrid LES-RANS methods in ventilated enclosures
10:35 – 11:00	**Coffee break**
11:00 – 12:40	**Session 5 (Chairperson: M. Braza**, IMFT, France**)**
11:00 – 11:25	***S. Schmid, Th. Lutz and E. Krämer*** (*Deutsches SOFIA Institut, Universiät Stuttgart, Institut für Aerodynamik und Gasdynamik, Universität Stuttgart, Germany*) Passive control of the unsteady flow inside the SOFIA telescope port by means of a porous fence
11:25 – 11:50	***I. Mary*** (*ONERA, France*) RANS/LES simulation of separated flow in a 3D curved duct
11:50 – 12:15	***L. Davidson*** (*Chalmers University of Technology, Sweden*) Large eddy simulations: Wall functions with forcing given by backscatter from a scale-similarity model
12:15 – 12:40	***M. Chevalier and S.-H. Peng*** (*FOI, Sweden*) Detached eddy simulation of turbulent flow in a highly offset intake diffuser
12:40 – 14:00	**Lunch**

Thursday, 11 June 2009 - afternoon sessions

14:00 – 15:40	**Session 6 (Chairperson: G. Barakos**, Liverpool University, UK**)**
14:00 – 14:25	***P. Doerffer*** (*IMP PAN, Poland*) Shock-boundary layer interaction – Results and problems of the symposium test case
14:25 – 14:50	***V. Togiti, M. Breuer and J. Longo*** (*German Aerospace Center, DLR, Germany; Helmut-Schmidt-University Hamburg, Germany*) Detached-eddy simulation of supersonic separated flows
14:50 – 15:15	***Afaque Shams and Pierre Comte*** (*Université de Poitiers, France*) Realizable detached eddy simulation (RDES) for strong shockwave / boundary layer interaction
15:15 – 15:40	***Afaque Shams and Pierre Comte*** (*Université de Poitiers, France*) Comparative study of turbulence modelling for supersonic separated flows
15:40 – 16:00	**Coffee break**
16:00 – 16:50	**Session 7 (Chairperson: F. Menter**, ANSYS, Germany**)**
16:00 – 16:25	***P. Doerffer*** (*IMP PAN, Poland*) UFAST: An EU FP6 collaborative project on "Unsteady effects of shock wave induced separation"
16:25 – 16:50	***W. Haase and D. Schwamborn*** (*DLR, Germany*) From FLOMANIA via DESider to ATAAC – A European effort on flow physics modelling
16:50 – 18:20	**Round-Table Forum (Chairpersons: W. Haase and S.-H. Peng)** **"Hybrid RANS-LES modelling: Where and how far to go?"** Panel Members: ***S. Fu, T. Gatski, F. Menter, M. Sillen,*** ***P. Spalart, M. Strelets, F. Thiele – minuted by C. Mockett*** ***together with all symposium participants!***

19:30	**Conference dinner, Mercure Hevelius Hotel**

Friday, 12 June 2009

08:45 – 09:35	**Keynote IV (Chairperson: P. Spalart**, Boeing Commercial Airplanes, USA**)** **U. Michel and F. Thiele** (*Technical University Berlin, Germany*) **Advanced DES methods and their application to aeroacoustics**
09:35 – 10:00	**Session 8 (Chairperson: P. Spalart**, Boeing Commercial Airplanes, USA**)**
09:35 – 10:00	***S.J. Lawson and G.N. Barakos*** (*University of Liverpool, United Kingdom*) DES for UCAV Weapon Bay Flow
10:00 – 10:20	**Coffee break**
10:20 – 12:00	**Session 9 (Chairperson: T. Gatski**, Laboratoire d'Etudes Aerodynamiques, France**)**
10:20 – 10:45	***K.A. Weinman*** (*Deutsches Zentrum für Luft- und Raumfahrt, DLR, Germany*) Comparison of hybrid RANS-LES calculations within the framework of compressible and incompressible unstructured Solvers
10:45 – 11:10	***M. Morzyński, B.R. Noack, M. Schlegel, G. Tadmor*** (*Poznan University of Technology, Poland; Berlin Institute of Technology, Germany; Northeastern University, Boston, MA, USA*) Turbulent flow modeling via Galerkin method and finite time thermodynamics
11:10 – 11:35	***S. Kubacki, E. Dick*** (*Ghent University, Belgium*) Hybrid RANS/LES simulation of impinging jet flow
11:35 – 12:00	***H. W. Zheng, F. C. G. A. Nicolleau and N. Qin*** (*The University of Sheffield, UK*) Assessment of DES on the flow after a snow-flake orifice
12:00 – 12:10	**Closing session**

12:15	**"Farewell lunch"**