

CURRICULUM VITAE Christian LACOR

Last update: December 2015

1 PERSONALIA

Born 30/06/1956 in Wilrijk

Belgian nationality

Married, 2 children

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E-mail: Chris.Lacor@vub.ac.be

2 ACADEMIC QUALIFICATIONS AND DIPLOMA'S

PhD Applied Sciences (Engineering). Promoter: Prof. Ch. Hirsch, Greatest Distinction, Vrije Universiteit Brussel (VUB), 1986.

Title PhD thesis: 'A Computational Method for Steady, Three-Dimensional, Inviscid, Subsonic Flows'

Burgerlijk Werktuigkundig-Electrotechnisch Ingenieur (Master of Science In Electromechanical Engineering), Greatest Distinction, VUB, 1979

3 CAREER

1/1/2011	Full professor (gewoon hoogleraar), Faculty of Engineering, VUB
1/3/2005	Chairman of the Research Group Fluid Mechanics and Thermodynamics
1/8/2001	Professor (hoogleraar), Faculty of Engineering, VUB
1/4/1997 – 1/8/2001	Associate professor (Hoofddocent), Faculty of Engineering, VUB
1/10/1990-1/4/1997	Assistant professor (Docent), Faculty of Engineering, VUB
1/10/1988-1/10/1990	Senior Research Scientist (Eerstaanwezend assistent), Faculty of Engineering, VUB
1/10/1987-1/10/1988	Research Scientist (Assistant), Faculty of Engineering, VUB

1/08/1985-31/7/1987	Senior Researcher at Flemish Science Foundation (Aangesteld Navorsers NFWO)
1/10/1980-31/7/1985	Researcher at Flemish Science Foundation (Aspirant Navorsers NFWO)
1/10/1979-1/10/1980	Researcher IWONL

4 EDUCATIONAL TASKS

4.1 TEACHING

FACULTY OF ENGINEERING

Compulsory courses

- Basistechnieken voor computersimulaties (Basic Techniques for Computer Simulations)
5 ECTS, 2nd BA year
- Warmte- en stromingsleer: Basisbegrippen (Heat transfer and fluid mechanics: basics)
7 ECTS, 3rd BA year (responsible for part on fluid mechanics)
- Warmte- en stromingsleer: Modelleren (Heat transfer and fluid mechanics: modelling)
7 ECTS, 3rd BA year (responsible for part on fluid mechanics)
- Aerodynamics (together with Prof. Deconinck)
5 ECTS, 1st MA Electromechanical Engineering
- Numerical methods in aerothermodynamics (together with Prof. Degrez)
5 ECTS, 1st MA Electromechanical Engineering
- Vehicle structures (together with Profs. Guillaume, Sol)
5 ECTS, 1st MA Electromechanical Engineering

4.2 MASTER THESIS

Supervisor of 25 MA thesis in Engineering since academic year 2000-2001

Co-supervisor of 2 MA thesis in Engineering together with ENSICA (France)

Co-supervisor of 1 MA thesis in Engineering at TU Delft (The Netherlands)

4.3 EUROPEAN TEMPUS PROJECTS

Electronic Laboratories for Engineering Education (eLab)

Period: 15/10/2011-14/10/2014

Numerical and Experimental Engineering Dynamics (NEED)

Period: 1/9/2007-31/8/2009

Course taught at the Faculty of Electrotechnique and Naval Architecture (FESB) of the Univ. of Split::

- Basics of CFD for the compressible Reynolds-Averaged Navier-Stokes equations
3 ECTS

Electricity Market Simulations and Analysis Curricula for Engineering Education (EMSA)

Period: 1/9/2007-31/8/2009

Numerical simulation program in mechanical engineering (NSP-ME)

Period: 01/09/2005 – 28/2/2009

Course taught at the Faculty of Mechanical Engineering, Univ. Ss. Cyril and Methodius, Skopje, Macedonia:

- Introduction to numerical techniques and basic CFD methodology
3 ECTS

Numerical simulation curricula (NUSIC)

Period: 01/03/2005 - 29/02/2008

Courses taught at the Faculty of Engineering and Naval Architecture (FAMENA) of the Univ. of Zagreb, Croatia:

- Solution of The Time Dependent Reynolds-Averaged Navier-Stokes equations with the Finite Volume Method
3 ECTS
- Advanced Methods for solving the Navier-Stokes equations
3 ECTS

5 RESEARCH

5.1 PUBLICATIONS (LAST 5 YEARS)

(CO-) AUTHOR OF A SCIENTIFIC MONOGRAPH:

Elsayed Kh., Lacor C.

Multi-Objective Surrogate Based Optimization of Gas Cyclones Using Support Vector Machines and CFD Simulations

in Application of Surrogate-based Global Optimization to Aerodynamic Design (E. Iuliano, E.A. Perez Eds.), Springer, ISBN 978-3-319-21506-8, 2016

Elsayed Kh., Lacor C.

CFD-based analysis and optimization of gas cyclones performance

in Computational Fluid Dynamics Applications in Green Design (Ed. Sadiq Al-Baghdadi)

International Energy and Environment Foundation (IJEE), ISBN: 978-1-49487-575-6, 2014

C. Lacor, C. Dinescu, Ch, Hirsch, S. Smirnov.
Implementation of Intrusive Polynomial Chaos in CFD codes and Application to 3D Navier-Stokes. In
Uncertainty Quantification in Computational Fluid Dynamics (Bijl, Lucor, Mishra, Schwab Eds.), Springer,
ISBN 978-3-319-00884-4, 2013

K. Van den Abeele, M. Parsani, **C. Lacor**
Stability and Accuracy Analysis of Spatial Discretizations
Chapter 12 in book 'Adaptive high-order methods in Computational Fluid Dynamics' (Ed. Z.J. Wang),
Advances in CFD, Vol. 2, World Scientific, 2011

ARTICLES/CONTRIBUTIONS IN SCIENTIFIC MONOGRAPHS:

C. Lacor

Implementation of stochastic Galerkin methods in CFD codes
VKI Lecture Series 'Uncertainty Quantification in CFD', October 24-28, 2011

ARTICLES IN SCIENTIFIC JOURNALS WITH AN INTERNATIONAL REFEREE SYSTEM

Ghader Ghorbaniasl, Zhongjie Huang, Leonidas Siozos-Rousoulis, and **Chris Lacor**
Analytical acoustic pressure gradient prediction for moving medium problems
Accepted Royal Society London, October 2015 – in press

Raisee M., Kumar D., **Lacor C.**

A Nonintrusive Model Reduction Approach for Polynomial Chaos Expansion Using Proper Orthogonal
Decomposition
Num Methods in Eng, online 26 march 2015, DOI: 10.1002/nme.4900

Ghorbaniasl Gh., Hirsch Ch., Siozos-Roussilos L., **Lacor C.**
Acoustic velocity formulation for Kirchhoff data surfaces
Int. J. Aeroacoustics, 14(1-2), 2015

Elsayed Kh., **Lacor C.**

Robust Parameter Design Optimization using Kriging, RBF and RBFNN with Gradient-Based and
Evolutionary Optimization Techniques
Applied Mathematics and Computation 236:325-344, 2014

Agnihotri V., Ghorbaniasl Gh., Verbanck S., **Lacor C.**

On the multiple LES frozen field approach for the prediction of particle deposition in the human upper
respiratory tract
Journal Aerosol Science, 68:58-72, 2014

Ghader Ghorbaniasl, Vivek Agnihotri, **Chris Lacor**

A self-adjusting flow dependent formulation for the classical Smagorinsky model coefficient
Phys. Fluids **25**, 055102 (2013); <http://dx.doi.org/10.1063/1.4804393>

Raisee M., Kumar D., **Lacor C.**

Stochastic Model Reduction for Polynomial Chaos Expansion Using Proper Orthogonal Decomposition
Chaotic Modeling and Simulation, 4:615-623, 2013

F. Krause, A. Wenk, **C. Lacor**, W.G. Kreyling, W. Möller, S. Verbanck
Numerical and experimental study on the deposition of nanoparticles in an extrathoracic oral airway
model
J Aerosol Science, 57:131-143, 2013

X. Wang, Ch. Hirsch, Z. Liu, S. Kang, **C. Lacor**
Uncertainty-based robust aerodynamic optimization of rotor blades
Int. J. Numer. Meth. Engng, 94:111-127, 2013

Kh. Elsayed, **C. Lacor**
CFD Modeling and Multi-Objective Optimization of Cyclone Geometry Using Desirability Function,
Artificial Neural Networks and Genetic Algorithms
Applied Mathematical Modelling, 37:5680-5704, 2013

Kh. Elsayed, **C. Lacor**
The Effect of Cyclone Vortex Finder Dimensions on the Flow Pattern and Performance using LES
Computers & Fluids, 71:224-239, 2013

Kh. Elsayed, **C. Lacor**
The Effect of the Dust Outlet Geometry on the Performance and Hydrodynamics of Gas Cyclones
Computers and Fluids, 68:134-147, 2012

Ghorbaniasl Gh., Carley M., **Lacor C.**
An Acoustic Velocity Formulation for Sources in Arbitrary Motion
AIAA J, 51(3):632-642, 2013

Kh. Elsayed, **C. Lacor**
Modeling and Pareto Optimization of Gas Cyclone Separator Performance Using RBF Type Artificial Neural
Networks and Genetic Algorithms
Powder Technology, 217:84-99, 2012

Vivek Agnihotri, Ghader Ghorbaniasl, Sylvia Verbanck, **Chris Lacor**
An eddy Interaction model for particle deposition
Journal of Aerosol Science 47:39-47, 2012

G. Ghorbaniasl and **C. Lacor**
A Moving Medium Formulation for Prediction of Propeller Noise at Incidence
Journal of Sound and Vibration, 331(1):117-137, 2012

Kh. Elsayed, **C. Lacor**
Numerical Modeling of the Flow Field and Performance in Cyclones of Different Cone-Tip Diameters
Computers & Fluids 51:48-59, 2011 <http://dx.doi.org/10.1016/j.compfluid.2011.07.010>

Kh. Elsayed, **C. Lacor**

Modeling, Analysis and Optimization of Aircyclones Using Artificial Neural Network, Response Surface Methodology and CFD Simulation Approaches
Powder Technology 212(1):115 - 133, 2011

X.D. Wang, Ch. Hirsch, Sh. Kang, **C. Lacor**

Multi-objective optimization of turbomachinery using improved NSGA-II
Comp. Meth. Applied mech. and Eng., Vol. 200(9-12):883-895, 2011

S. Verbanck , H.S. Kalsi , M.F. Biddiscombe, V. Agnihotri, B. Belkassam, **C. Lacor**, and O.S. Usmani

Inspiratory And Expiratory Aerosol Deposition In The Upper Airway
Inhalation Toxicology, 23(2):104-111, 2011

M. Parsani, G. Ghorbaniasl, **C. Lacor**

Analysis of the implicit LU-SGS algorithm for 3rd- and 4th-order spectral volume scheme for solving the Navier-Stokes equations
J Computational Physics, 230(19):7073-7085, 2011

M. Parsani, G. Ghorbaniasl and **C. Lacor**

Validation and application of a high-order spectral difference method for flow induced noise simulation
J. Computational Acoustics, 19(3):241-268, 2011

Kh. Elsayed, **C. Lacor**

The effect of Cyclone Inlet Dimensions on the Flow Pattern and Performance
Applied Mathematical Modelling, 35(4): 1952-1968, 2011 [doi:10.1016/j.apm.2010.11.007](https://doi.org/10.1016/j.apm.2010.11.007)

Kh. Elsayed, **C. Lacor**

Optimization of the Cyclone Separator Geometry for Minimum Pressure Drop using Mathematical models and CFD simulations
Chemical Engineering Science 65:6048-6058, 2010

I. Stankovic, A. Triantafyllidis, E. Mastorakos, **C. Lacor** and B. Merci

Simulation of hydrogen auto-ignition in a Turbulent co-flow of heated air with LES and CMC approach
Flow, Turbulence and Combustion, 86(3):689-710, 2011

M. Parsani, G. Ghorbaniasl, **C. Lacor**, E. Turkel

An Implicit High-Order Spectral Difference Approach For Large Eddy Simulation
J Computational Physics, 229(14):5373-5393, 2010 [doi:10.1016/j.jcp.2010.03.038](https://doi.org/10.1016/j.jcp.2010.03.038), 2010
No. 8 in top 25 hottest articles JCP, April to June 2010

C. Dinescu, S. Smirnov, Ch. Hirsch, **C. Lacor**

Assessment of intrusive and non-intrusive non-deterministic CFD methodologies based on Polynomial Chaos expansions
International Journal of Engineering Systems Modelling and Simulation, Vol. 2, No.1-2, pp. 87-98, 2010

M. Parsani, K. Van den Abeele, **C. Lacor** and E. Turkel

Implicit LU-SGS algorithm for high-order methods on unstructured grids with p-multigrid strategy for

solving steady Navier-Stokes equations
J Comput Phys, 229:828-850, 2010

COMMUNICATIONS AT INTERNATIONAL CONGRESSES / SYMPOSIA INTEGRALLY
PUBLISHED IN PROCEEDINGS

A. Bonanni, T. Banyai, Mehrdad Raisee, Dinesh Kumar, J. Van Beeck, H. Deconinck, **C. Lacor**
Wind Farm Optimization based on CFD Simulation of Non-Flat Terrain
Int. Conf. on Environment and Renewable Energy, Vienna, 20-21 May 2015 and J Environmental Sci 4,
2015

De Maesschalck C., **Lacor C.**, Paniagua G., Lavagnoli S., Remiot A., Bricteux L.
Performance Robustness of Turbine Squealer Tip Designs due to Manufacturing and Engine Operation
22nd International Symposium on Air Breathing Engines (ISABE) conference, Phoenix, USA, Oct. 25-30,
2015

Leonidas Siozos-Rousoulis, Ghader Ghorbaniasl, **Chris Lacor**
Noise control by a rotating rod in a rod-airfoil configuration
Proc. 21st AIAA/CEAS Aeroacoustics Conference, Dallas, TX, 22-26 June 2015

Leonidas Siozos-Rousoulis, Ghader Ghorbaniasl, **Chris Lacor**
Acoustic effects of a rotationally oscillating rod in a rod-airfoil configuration
Proc. 21st AIAA/CEAS Aeroacoustics Conference, Dallas, TX, 22-26 June 2015

Miranda J., Abraham S., Elsayed K., **Lacor C.**
A One-Step Discrete Adjoint-Based Approach for Combined Design Optimization and A Posteriori Error
Estimation
Proc EngOpt 2014 Conference, Lisbon, 8-11 september 2014

L. Siozos-Rousoulis, G. Ghorbaniasl and **C. Lacor**
Active Control of Noise Generation in a Rod-Airfoil Configuration
Proc. Int. Conf. Acoustic Climate Inside and Outside Buildings, Vilnius, 23-26 september 2014

Stergiannis N., van Beeck J., Donnelly R., **Lacor C.**
Full rotor CFD simulations of the MEXICO wind turbine including the nacelle in OpenFOAM
Proc. 2nd OpenFOAM User Conf, Berlin, 2014

Stergiannis N., Rados K.G., Caralis G., **Lacor C.**, Donnelly R., Tourlidakis A., Perivolaris I., Zervos A.
CFD modelling approaches of onshore wind farms and their potential impact on the microclimate of Chios
Proc. EWEA 2014 Conf, Barcelona

Kumar D., Raisee M., **Lacor C.**
Towards an efficient non-intrusive polynomial chaos approach for high dimensional stochastic problems
using a reduced basis approach
Proc. ECCOMAS European CFD conference, Barcelona, 20-25 July 2014

Khairy Elsayed, **Chris Lacor**
Multi-Objective Surrogate Based Optimization of Gas Cyclones using Support Vector Machines and CFD

Simulations

Proc. ECCOMAS European CFD conference, Barcelona, 20-25 July 2014

Joao Miranda, Khairy Elsayed, **Chris Lacor**

A One-Step Discrete Adjoint-Based Approach for Combined Design Optimization and A Posteriori Error Estimation

Proc. OPT-I 2014 conference, Kos, June 4-6, 2014

Khairy Elsayed, Joao Miranda, Ghader Ghorbaniasl, **Chris Lacor**

Optimal Cyclone Geometry Using The Adjoint Methods

Proc. OPT-I 2014 conference, Kos, June 4-6, 2014

Khairy Elsayed, Joao Miranda, **Chris Lacor**

2D Viscous Shape Design Optimization And Mesh Adaptation Using The Adjoint Method

Proc. 16th Int Conf on Applied Mechanics and mechanical Engineering (AMME-16) Conference, Cairo, May 27-29, 2014

Khairy Elsayed, **Chris Lacor**

Optimization of Multi-Fidelity Data Using Co-Kriging For High Dimensional Problems

Proc. 16th Int Conf on Applied Mechanics and mechanical Engineering (AMME-16) Conference, Cairo, May 27-29, 2014

Khairy Elsayed, Simon Abraham, Mehrdad Raisee, **Chris Lacor**

Optimum Operating Conditions Of Electronic Cooling Heat Exchanger Using Multi-Fidelity Data

Proc. 1st Aviation Engineering Innovations Conf, 21-22/3/2014, Cairo, Egypt

Khairy Elsayed, Simon Abraham, Mehrdad Raisee, **Chris Lacor**

The Application Of Support Vector Machines In Modeling And Optimization Of Plate Fin Heat Sink For Electronic Applications

Proc. 1st Aviation Engineering Innovations Conf, 21-22/3/2014, Cairo, Egypt

Raisee M., Kumar D., **Lacor C.**

Development of a Non-Intrusive Model Reduction Approach for Polynomial Chaos Representation

Proc. Int Workshop on Uncertainty Quantification in Fluids Simulation, BOQUSE 2013, Bordeaux, 16-18 December 2013

Elsayed Kh., **Lacor C.**

The Influence of the Dustbin Apex-Cone on the flow field and performance of Gas Cyclones, Proc. ICFD11 Conf, 19-21 december, Alexandria, Egypt, 2013

Elsayed Kh., **Lacor C.**

Robust Parameter Design Optimization Using KRIGING, RBF and RBFNN, Proc. ICFD11 Conf, 19-21 december, Alexandria, Egypt, 2013

Elsayed Kh., **Lacor C.**

Comparison of Kriging, RBFNN, RBF and Polynomial Regression Surrogates in Design Optimization, Proc. ICFD11 Conf, 19-21 december, Alexandria, Egypt, 2013

Raisee M., Kumar D., **Lacor C.**

Stochastic Model Reduction for Polynomial Chaos Expansion Using Proper Orthogonal Decomposition.
Proc. 6th Chaotic Modeling and Simulation International Conference, pp.461-468, 11-14 June, Istanbul,
2013

Elsayed Kh., **Lacor C.**

Optimization of Multi-Fidelity Data Using Co-Kriging for High Dimensional Problems
Proc. 15th Int Conf Aerospace Sciences and Aviation Technology, Cairo, May 28-30, 2013

Ghorbaniasl G., Agnihotri V. and **Lacor C.**

On the estimation of the subgrid scale model coefficients in large eddy simulation
European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2012) J.
Eberhardsteiner et.al. (eds.), Vienna, Austria, September 10-14, 2012

Agnihotri V., Ghorbaniasl G., Verbanck S. and **Lacor C.**

Numerical study of aerosol deposition in a simplified human mouth throat model
European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2012) J.
Eberhardsteiner et.al. (eds.), Vienna, Austria, September 10-14, 2012

Deconinck W., Parsani M., Ghorbaniasl G., and **Lacor C.**

Efficient high-order spectral difference solver for the linearized Euler equations
European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2012) J.
Eberhardsteiner et.al. (eds.), Vienna, Austria, September 10-14, 2012

Khairy Elsayed and **Chris Lacor**

Multi-Objective Optimization of Cyclone Geometry Based on CFD Simulations Using the Desirability
Function and Genetic Algorithms
European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2012) J.
Eberhardsteiner et.al. (eds.), Vienna, Austria, September 10-14, 2012

M. Parsani and **C. Lacor**

Large Eddy simulation of a muffler with high-order spectral Difference method
International Conference on Spectral and High Order Methods ICOSAHOM 2012, Tunisia

W. Deconinck, **C. Lacor**

Linearized Euler equations solved by a spectral difference method with a non-reflecting boundary
condition
International Conference on Spectral and High Order Methods ICOSAHOM 2012, Tunisia

Khairy Elsayed and **Chris Lacor**

Analysis and Optimization of Cyclone Separators Geometry Using RANS and LES Methodologies
3rd International Conf. on Turbulence Interaction TI2012, La Reunion, 11-14 June 2012

F. Krause, G. Ghorbaniasl, S. Verbanck, **C. Lacor**

Numerical study of deposition mechanisms of nanoparticles in a human upper airway model
3rd International Conf. on Turbulence Interaction TI2012, La Reunion, 11-14 June 2012A.

Bonanni, G. De Volder, T. Banyai, T. Quintino, G. Mitaniadis, **C. Lacor**, H. Deconinck

Evaluation of turbine wake models in offshore wind farms
EWEC 2011 Offshore conference, Nov. 2011

T.Banyai , A.Bonanni, T.Quintino, **C. Lacor**, H.Deconinck
Finite Element Technique for CFD Simulations of Atmospheric Boundary Layer Flows
Proc. ICWE13 conf.,Amsterdam, July 10-15, 2011

F. Krause, A. Wenk, W. Möller†, S. Verbanck, **C. Lacor**, W. G. Kreyling
Numerical And Experimental Investigation Of Ultrafine Particle Transport And Deposition In A Human
Upper Airway Model
Proc. SIMBIO 2011 conference, 21-23/9/2011, Brussels

Kh. Elsayed, **C. Lacor**
A CFD Study Of The Effect Of The Cyclone Barrel Height On Its Performance Parameters
Proc. 8th International Conference On CFD In Oil & Gas, Metallurgical And Process Industries,
Sintef/Ntnu, Trondheim Norway, 21-23 June 2011.

S. Verbanck, M.F. Biddiscombe, H.S. Kalsi, V. Agnihotri, B. Belkasssem, **C. Lacor**, O. Usmani
Inspiratory and expiratory aerosol deposition in the upper airway
American Thoracic Society Int. Conf., Denver, 13-18/5/2011, Am J Respir Crit Care Med 183;2011:A3299.

Khairy Elsayed, **Chris Lacor**
The Effect of Dust Outlet Shape on the Flow Pattern and Performance of Cyclone Separators
10th International Symposium on Experimental and Computational Aerothermodynamics of Internal
Flows (ISAIF10), July 4-7, 2011

Khairy Elsayed, **Chris Lacor**
The Effect of the Cyclone Separator Cone Height on the Performance Using Artificial Neural Network
Model and CFD Simulations
10th International Symposium on Experimental and Computational Aerothermodynamics of Internal
Flows (ISAIF10), July 4-7, 2011

Kh. Elsayed and **C. Lacor**
Modelling The Gas-Solid Flow Inside Cyclone Separator Using k- ω SST,
RSM, DES and LES
14th International Conference on Aerospace Sciences & Aviation Technology (ASAT-14), 24-26 May, 2011,
The Military Technical College, Cairo, Egypt

Kh. Elsayed and **C. Lacor**
Numerical investigations of the effect of different dust outlet designs on the cyclone performance and
flow patterns
14th International Conference on Aerospace Sciences & Aviation Technology (ASAT-14),24-26 May, 2011,
The Military Technical College, Cairo, Egypt

Khairy Elsayed, **Chris Lacor**
Optimization Of The Cyclone Separator Geometry For Minimum Pressure Drop Based On Artificial Neural
Network
ECCOMAS Thematic Conference CFD in OPTIMIZATION, Antalya, Turkey, 23-25 May 2011

Kh. Elsayed, **C.Lacor**.

The effect of cyclone inlet width on the flow pattern and performance

Tenth International Congress of Fluid Dynamics, ASME, Egypt, ICFD10-EG-3085, accepted for publication, Ain Soukhna, Red Sea, Egypt, 16-19 December, 2010.

Kh. Elsayed, **C.Lacor**.

Numerical study on the effect of cyclone inlet height on the flow pattern and performance

Tenth International Congress of Fluid Dynamics, ASME, Egypt, ICFD10-EG-3068, accepted for publication, Ain Soukhna, Red Sea, Egypt, 16-19 December, 2010.

Kh. Elsayed, **C.Lacor**

The effect of cyclone dustbin on the flow pattern and performance

Tenth International Congress of Fluid Dynamics, ASME, Egypt, ICFD10-EG-3092, accepted for publication, Ain Soukhna, Red Sea, Egypt, 16-19 December, 2010.

Kh. Elsayed, **C. Lacor**

The effect of cyclone height on the flow pattern and performance using LES

Tenth International Congress of Fluid Dynamics, ASME, Egypt, ICFD10-EG-3092, accepted for publication, Ain Soukhna, Red Sea, Egypt, 16-19 December, 2010

Kh. Elsayed, **C. Lacor**

Application of Response Surface Methodology for Modeling and Optimization of the Cyclone Separator for Minimum Pressure Drop

Proc. ECCOMAS CFD Conf., Lisbon, June 2010

Kh. Elsayed, **C. Lacor**

The Effect Of Vortex Finder Diameter On Cyclone Separator Performance And Flow Field

Proc. ECCOMAS CFD Conf., Lisbon, June 2010

M. Parsani, G. Ghorbaniasl, **C. Lacor**

An implicit high-order spectral difference method for LES

Proc. ECCOMAS CFD Conf. Lisbon, June 2010

V. Agnihotri, Kh Elsayed, **C Lacor**, S. Verbanck

Numerical Study of Particle Deposition in The Human Upper Airways with Emphasis on Hot Spot Formation and Comparison of LES and RANS Models

Proc. ECCOMAS CFD Conf., Lisbon, June 2010.

G. Onorato, G.J.A. Loeven, G. Ghorbaniasl, H. Bijl, **C. Lacor**

Comparison of intrusive and non-intrusive polynomial chaos methods for CFD applications in aeronautics

Proc. ECCOMAS CFD Conf., Lisbon, June 2010.

M. Parsani, G. Ghorbaniasl, **C. Lacor**

Development of LES-High-Order Spectral Difference Method for Flow Induced Noise Simulation

Proc. 16th AIAA/CEAS Aeroacoustics Conf., 7-9 June 2010, Stockholm

Kh. Elsayed, **C. Lacor**

Modeling of the Gas and Particle Flow in the Cyclone Separator using LES, RANS and Mathematical Models

Proc. 14th International Conference on Applied Mechanics and Mechanical Engineering AMME-14, Military Technical College, Cairo, Egypt, May 2010.

COMMUNICATIONS AT INTERNATIONAL CONGRESSES NOT PUBLISHED OR ONLY AVAILABLE AS ABSTRACT

Kumar D., Raisee M., **Lacor C.**

A Reduced Basis Approach for Efficient Nonintrusive Polynomial Chaos in CFD
Dresdner Probabilistik-Workshop, TU Dresden, 8-9 october 2014

COMMUNICATIONS AT OTHER CONGRESSES INTEGRALLY PUBLISHED IN PROCEEDINGS

D. Kumar, **C. Lacor**

Heat conduction in a 2D domain with geometrical uncertainty using intrusive polynomial chaos method
NCTAM, RMA, May 2012

Vivek Agnihotri, Ghader Ghorbaniasl, Sylvia Verbanck, **Chris Lacor**

Numerical Study of Aerosol Deposition Behavior in a Simplified Human Upper Airway Model
NCTAM, RMA, May 2012

COMMUNICATIONS AT OTHER CONGRESSES NOT PUBLISHED OR ONLY AVAILABLE AS AN ABSTRACT:

Dinesh Kumar, Mehrdad Raisee, **Chris Lacor**

Efficient Uncertainty Quantification with Polynomial Chaos
Proc. ERCOFTAC Annual Seminar, UCL, 7/12/2012

F. Krause, A. Wenk, W. Kreyling, W. Moeller, S. Verbanck and **C. Lacor**

Deposition of nanoparticles in an extrathoracic airway model: simulations and experiments
Proc. ERCOFTAC Annual Seminar, VKI, 13/12/2011

5.2 INVITED LECTURES (LAST 5 YEARS)

ModTech2015 International Conference, June 17-20, 2015, Mamaia, Romania

Efficient Uncertainty Quantification in Engineering with Polynomial Chaos

Introduction to Uncertainty Quantification Methods

Invited course (35h) for Sichuan Aerospace College of Vocation Technology, Chengdu, 20-24/12/2014

XX National Fluid mechanics Conference of Poland, Gliwice, Sept 17-20, 2012: Multiphase flow simulations in the Upper Airways and Tracheobronchial Geometries of the Lung

An implicit high-order spectral difference approach for LES with applications to aeroacoustics

DLR Braunschweig, 25/11/2011

Implementation of stochastic Galerkin methods in CFD codes

VKI Lecture Series 'Uncertainty Quantification in CFD', 24-28/10/2011

Airbreathing Simulations and Particle transport in the Upper Airways and tracheobronchial Geometries of the Lung

10th International Symposium on Experimental and Computational Aerothermodynamics of Internal Flows, Brussels, July 4-7, 2011

Intrusive Polynomial Chaos Methods

ONERA Symposium 'Accuracy and Uncertainty in Flow Simulation', Chatillon, 3/12/2010

An LES methodology for unstructured grids with applications to aeroacoustics

'Maths and Air' Workshop, Organized by IUMA (Instituto Universitario de Matematicas y Aplicaciones, Universidad de Zaragoza, Zaragoza, 16-18/6/2010

An Implicit High-Order Spectral Difference Method for LES

Mini-symposium 'Towards Industrial Applications of Higher Order methods', ECCOMAS CFD Conf., Lisbon, 14-17/6/2010

Comparison of intrusive and non-intrusive polynomial chaos methods for CFD applications in aeronautics

Mini-symposium 'Non-deterministic Simulation in CFD', ECCOMAS CFD Conf., Lisbon, 14-17/6/2010

Numerical Study of Particle Deposition in The Human Upper Airways with Emphasis on Hot Spot Formation and Comparison of LES and RANS Models

Mini-symposium 'Bioflows in the airways', ECCOMAS CFD Conf., Lisbon, 14-17/6/2010

Fundamentals of CFD and new approaches in CFD

Univ. of Czestochowa (Prof. Boguslawski), 20-21/5/2010

5.3 RESEARCH PROJECTS (LAST 5 YEARS)

PROJECTS WITH EXTERNAL FUNDING

EC projects

UMRIDA- Uncertainty Management for Robust Industrial Design in Aeronautics

Period: 01/10/2013-30/09/2016

Financing: EC FP7 Collaborative Project

NODESIM-CFD – Non-deterministic simulation for CFD-based Design Methodologies

Period: 01/11/2006 - 28/02/2010

Financing: EC Strep

GOA projects (Concerted Research Action)

ASiLung – Towards Air-Breathing Simulations in Realistic Tracheobronchial Geometries of the Normal and the Diseased Lung

Period: 01/01/2009-31/12/2013

IWT projects (Flemish Institute for Science and Technology)

Strategic Basic Research project EUFORIA (Efficient Uncertainty Quantification For Optimization in Robust Design of Industrial Applications)

Period: 1/3/2015-28/2/2019

Financing: IWT SBO project

Prediction of direct and scattered sound field from rotating machinery

Period: 1/1/2014-31/12/2017

Financing: IWT PhD fellowship

Design, analysis, optimization and control of rotor tip flows

Period: 1/1/2013-31/12/2016

Financing: IWT PhD fellowship

Functional imaging using computer methods to predict the effect of thoracic surgery and endoscopic volume reduction on post-intervention lung volumes

Period: 1/10/2009-1/4/2011

Financing: IWT TBM (Applied Biomedical Research)

3D-Testbench

Period: 1/6/2008-31/12/2010

Financing: IWT ITEA-2

CAPRICORN - Simulation and design tools towards the reduction of aerodynamic noise in confined flows

Period: 01/06/2006 - 31/12/2010

Financing: IWT SBO project

Development of a Large Eddy Simulation methodology for compressible flows on unstructured grids with application to non-premixed combustion

Period: 01/01/2009 - 31/12/2012

Financing: IWT PhD fellowship

FWO projects (Flemish Science Foundation)

Uncertainty Quantification in Aeroacoustic Robust Design Applications

Period: 01/01/2016-31/12/2019

Financing: FWO

An adjoint method for combined robust optimization, error estimation and uncertainty quantification in CFD

Period: 01/01/13- 31/12/2016

Financing: FWO

Simulation of non-premixed turbulent combustion with CMC models in combination with LES

Period: 01/01/07 - 31/12/2010

Financing: FWO

INNOVIRIS project (Brussels Institute for Research and Innovation)

Non-Deterministic Advanced CFD Modeling of Wind Trubine Wakes and their Interaction with Applications to Wind Farms Including Complex Terrain Effects

Period: 1/1/2014-31/12/2017

Financing: INNOVIRIS Doctiris PhD fellowship

Other projects

Modeling of high-enthalpy plasmas (PostDoc research)

Period: 01/02/2010 - 31/1/2011

Financing: Von Karman Institute

Mechanical Engineering Applied to Society

Period: 01/01/2007 - 31/12/2012

Financing: IOF (Industrial Research Fund)

PROJECTS WITH FUNDING OF VUB RESEARCH COUNCIL

Efficient uncertainty quantification for surrogate based optimization using adjoint methods

Khairy Elsayed: 1 year VUB PostDoc fellowship 01/10/2013-30/09/2014

Modeling and Optimization of the Combined Effect of Axial Spacing and Rear Rotor Clipping on Tone and Broadband Noise Generation Mechanisms of Contra-Rotating Open Rotors at Incidence

Leonidas Siozos-Rousoulis: 1 year VUB fellowship from 1/1/2013-31/12/2013

Development of intrusive non – deterministic methods for advanced applications in CFD

Giuseppe ONORATO: 1 year VUB fellowship from 1/1/2010-31/12/2010

Micro-scale Assessment and Prediction of Wind Resources for Wind Parks based on Numerical Modelling and Simulation

Antonino BONANNI: 2 year VUB fellowship from 1/1/2010-31/12/2011

5.4 PROMOTER PHD THESIS

Vivek Agnihotri: 24/2/2014

Modeling air and particle transport in the human upper and tracheobronchial airways using RANS and LES

Mahdi ZAKYANI: 22/12/2011

Simulation of Turbulent Diffusion Flames using Large Eddy Simulation and Conditional Moment Closure

Khairy ELSAYED: 28/10/2011

Analysis and Optimization of Cyclone Separators Using RANS & LES Methodologies

Patryk WIDERA: 24/8/2011

Study of sediment transport processes using Reynolds Averaged Navier-Stokes and Large Eddy Simulation

M. Parsani: 23/11/2010

Development of an efficient Navier-Stokes/LES solver on unstructured grids for high-order accurate schemes

X. Wang: 29/10/2010

CFD Simulation of Complex Flows in Turbomachinery and Robust Optimization of Blade Design

Joint PhD with North China Electric Power University

G. Ghorbaniasl: 4/9/2009

Computational Aeroacoustic Noise Prediction Using Hybrid methodologies

K. Van den Abeele: 29/5/2009

Development of high order accurate methods for unstructured grids

S. Jayaraju: 2/4/09

Study of the air flow and aerosol transport in the human upper airway using LES and DES methodologies

M. Brouns: 11/10/2007

Numerical and Experimental study of Flow and Deposition of Aerosols in the Upper Human Airways

D. Vucinic: 5/9/2007 (co-promoter: Ch. Hirsch)

Development of a Scientific Visualization System

T. Broeckhoven: 23/1/2007

Large Eddy Simulation of turbulent combustion: numerical study and applications

S. Smirnov: 23/10/2006

Development of a finite volume formulation of compact schemes with applications to LES

S. Geerts: 22/5/2006 (co-promoter: Ch. Hirsch)

Experimental and numerical evaluatie study of an axial flow pump

K. Kovalev: 20/12/2005 (co-promoter: Ch. Hirsch)

Unstructured Hexahedral Non-conformal Mesh Generation

O. U. Baran: 20/12/2005 (co-promoter: Ch. Hirsch)

Control methodologies in hexahedral grids generation

J. Ramboer: 30/9/2005

Development of numerical tools for computational Aeroacoustics

B. Lessani: 19/3/2003

LES of Turbulent Flows. Application to low Mach number and particle-laden flows

5.6 CO-OPERATION WITH FOREIGN RESEARCH GROUPS

Prof. Usmani, Imperial College and Royal Brompton Hospital
Prof. Kreyling, Möller, Helmholtz Center, München
Prof. Turkel, School of Mathematics, Tel Aviv University
Prof. Janicka, Energie- und Kraftwerkstechnik, TU Darmstadt
Prof. Mastorakos, Dept. Of Engineering, Univ. Of Cambridge
Prof. Schröder, Faculty Mechanical Engineering, RWTH Aachen
Prof. Bijl, Faculteit Lucht- en Ruimtevaarttechniek, TU Delft
Prof. Z.J. Wang, Aerospace Engineering, Iowa State University
Prof. Darquenne, Dept. Medicine, Univ. of California San Diego
Prof. Boguslawski, Institute Thermal Machinery, Czestochowa Univ. of technology, Poland

5.7 EXTERNAL STAYS AS GUESTPROFESSOR / RESEARCHER

Invited Professor at Sichuan Aerospace College of Vocation Technology, Chengdu, 20-24/12/2014
Invited Professor at Czestochowa University of Technology, Poland, 19-22/5/2010
Invited Professor at University of Split, 24-27/3/2009
Invited Professor at Sv. Kiril I Metodij University, Skopje, 16-18/4/2007 and 20-22/6/2007
Invited Professor at University of Zagreb, 23-27/1/2006 and 20-24/3/2006
Invited Professor at University of La Plata, Argentina, 4-12/2/2005
Invited Professor at University of Dhaka, 26-30/9/2002
Invited Professor at University of Shanghai for Science and Technology, 6-10/4/1998
Visiting researcher at EPFL, Dept. IMHEF, Lausanne, 14/1-12/2/1989
Ames Associate, NASA Ames Research Center, Moffett Field, California, 1/7-14/8/1987

6 MISCELLANEOUS

Member of the CFD committee of ECCOMAS (European Council for Computational Methods in Applied Sciences)

Member FNRS (Science Foundation of French speaking community in Belgium) commission Mécanique et Electricité appliquées

Honorary Member of the National Committee of Theoretical and Applied Mechanics (Committee of the Royal Academy of Belgium)

Fellow of the VLAC (Flemish Academy for Art and Science)

Member of the Belgian Pilot Center of ERCOFTAC (European Research Community on Flow, Turbulence and Combustion)

Member Editorial Board of Journal of Mathematics, September 2012 – September 2014

Member Stuurgroep Vlaams Supercomputer Centrum