CURRICULUM VITAE

Michael Albert Leschziner

Present Position: Professor of Computational Aerodynamics,
Senior Research Investigator.

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Academic Record

1969: Dipl. Maschineningenieur HTL with distinction, Hochschule Luzern – Technik & Architektur, Switzerland.
1972: B.Sc. 1st class honours in Mechanical Engineering, The City University, London. Award of Outstanding B.Sc. Project Prize of the IMechE.
1973: DIC and M.Sc. with distinction in Heat-Transfer Engineering, Imperial College.
1976: Ph.D. University of London for research into the computational modelling of high-speed lubricating films.
1994: D.Sc. University of Manchester, Computational Modelling of Complex Turbulent Flows in Thermo-Fluids Engineering.

Fellowships

Fellow, Royal Academy of Engineering.
Fellow, Royal Aeronautical Society.
Fellow, Institution of Mechanical Engineers.
Fellow, School of Engineering, University of Tokyo.

Professional Record

1977 - 1980 : Research Engineer and Project Leader at the Sonderforschungsbereich 80, University of Karlsruhe, West Germany. Major activity: Numerical modelling of environmental flows.
1980 - 1990 : Lecturer, Senior Lecturer, Reader, Department of Mechanical Engineering, The University of Manchester Institute of Science and Technology (UMIST).
1986 - 1999 : Director of UMIST's FLAIR Industrial Research Unit in Computational Fluid Dynamics.
1990 - 1999 : Professor of Computational Fluid Dynamics, UMIST.
1994 - 1995 : Head of Thermodynamics and Fluid Mechanics Division, UMIST.
1995 - 1997 : Head of Mechanical Engineering Department, UMIST.
1997 - 1999 : Head of Thermodynamics and Fluid Mechanics Division, UMIST.
1999 - 2001 : Professor of Aerospace Engineering and Aerospace Course Director,

		QMW, University of London.
2001 -	:	Professor of Computational Aerodynamics, Department of Aeronautics, Imperial College London.
2006 -2009		Head of Wing Technologies Centre, Department of Aeronautics, Imperial College London.

Principal Research Interests – past and present

- Turbulence modelling and simulation of physically and geometrically complex flows (RANS, LES, DNS and their hybrids), especially of separation from curved surfaces.
- Numerical approximation techniques and efficient solution methods (e.g. multigrid schemes, monotonicity-preserving schemes, and high-order temporal-discretisation schemes).
- Parallel computing with domain decomposition techniques.
- Shock/boundary-layer interaction and shock-affected under-expanded jets.
- External aerodynamics, especially for high lift geometries and involving separation.
- Bypass transition in unsteady turbomachine flows (e.g. unsteady wake/blade interaction and wake-induced transition).
- Flow around cylinders and cylinder assemblies (e.g. undercarriage configurations).
- Complex duct flows.
- Structure identification in turbulence with dynamical systems analysis.
- Control of friction and pressure drag by flow-manipulation strategies.
- Inter-scale turbulence physics in near-wall layers.

Selected Conference Chairmanships, Membership of External Committees and Editorships (from a total of 37)

1. Editor-in-Chief, Flow, Turbulence and Combustion, Springer.
2. Chairman of 10th Int. ERCOFTAC Symposium on Engineering Turbulence Modelling and Measurements (ETMM10), Marbella, Spain, 2014.
3. Chairman of 8th Int. ERCOFTAC Symposium on Engineering Turbulence Modelling and Measurements (ETMM8), Marseille, France, 2010.
4. Chairman of 7th Int. ERCOFTAC Symposium on Engineering Turbulence Modelling and Measurements (ETMM7), Limassol, Cyprus, 2008.
5. Chairman of 2nd International Symposium on Turbulence and Shear Flow Phenomena, 2001, Stockholm, Sweden.
6. Chairman, ERCOFTAC (European Research Collaboration on Flow Turbulence and Combustion) Scientific Programme Committee, 2005-2010.
7. Member, Organising Committee, 1st-5th Int. Symposia on Turbulence and Shear Flow Phenomena, 1998-2008.

8. Regional Editor, Computers and Fluids.
9. Editor, Phil. Trans. Royal Society A of Theme Issue: Flow-control approaches to drag reduction in aerodynamics: progress and prospects 2011.
10. Guest Editor, Special TSFP2 Issue of Int. J. Heat and Fluid Flow (2002).
11. Guest Editor, ETMM7 Special Issue of Flow, Turbulence and Combustion, 2008.
12. Guest Editor, ETMM8 Special Issue of Flow, Turbulence and Combustion, 2010.
13. Joint Editor, Large Eddy Simulation for Aerofoils, Springer (2002).
14. Editor, Industrial Hydraulics and Multi-Phase Flows, HYDRA 2000, Vol. 2 of Proc. of XXVIth Congress of the IAHR, London.
15. Joint Editor, EUROVAL A European Initiative on Validation of CFD Codes, Notes on Numerical Fluid Mechanics, Vieweg Verlag, Vol 42.
16. Joint Editor, Proc. 2nd ERCOFTAC Workshop on Domain Decomposition for CFD on Message Passing Machines.
17. Joint Editor, Proc. 2nd ERCOFTAC-IAHR Workshop on Refined Flow Modelling, UMIST, June 1993.
18. Joint Editor, ECARP - European Computational Aerodynamics Research Project: Validation of CFD Codes and Assessment of Turbulence Models, Notes on Numerical Fluid Mechanics, 58, Vieweg Verlag.
19. Joint Series Editor, Notes on Numerical Fluid Mechanics, Vieweg Publishers, Braunschweig/Wiesbaden.
20. Member, Editorial Advisory Board, Computers and Fluids.
21. Member of Council of UK Aerodynamics Centre.
22. Member, Royal Society Research Grant Scheme Board (Physical Sciences), 2012.
23. Member, Scientific Organizing Committee, IAHR Symposia on Refined Flow Modelling and Turbulence Measurements.
24. Member Int. Scientific Committee, Saint-Venant Symposium, Paris.
25. Member, Technical Advisory Committee, Turbulent Shear Flow Symposia.
26. Member, Technical Advisory Committee, XXIV IAHR Congress, Madrid.
27. Member, Scientific Committee, ECCOMAS, 1st, 2nd, 3rd, 4th European Computational Fluid Dynamics Conferences.
28. Secretary, IAHR Section on Flow Phenomena in Energy Production (until 1998). Member of Editorial Board, Int. J. Heat and Fluid Flow.
29. Member of Board of Advisory Editors, Journal of Flow Turbulence and Combustion.
30. Member of Editorial Board, Journal of Turbulence.
31. Member of Scientific Committee, 5th Int. IAHR Symp. on Refined Flow Modelling & Turbulent Measurements, Paris.
32. Member of Editorial Committee and Theme Editor, XXIV IAHR Congress "Hydra 2000", London.
33. Editor, Newsletter of the Section on Fluid Phenomena in Energy Exchanges (until 1997).

34. Chairman of Steering Group of EPSRC Collaborative Computational Project 12 (CCP12) in High Performance Computing in CFD (until 1999).
35. Member of Royal Aero Soc Aerodynamics Committee.
36. Member of EPSRC Mechanical Engineering College.
37. Joint Editor, Numerical Methods in Laminar and Turbulent Flow 9, Pineridge Press, Swansea, UK.
38. Member of Organising Committee of 1st and 3rd International Symposium on Turbulence and Shear Flow Phenomena, 1999, S. Barbara, USA, and Sendai, Japan.
39. Chairman of 2nd International Symposium on Turbulence and Shear Flow Phenomena, 2001, Stockholm, Sweden.
40. Organiser of Mini-Symposium on Turbulence in Compressible Flows at ECCOMAS 2000, European Congress on Computational Methods in Applied Science and Engineering, Barcelona, 2000.
41. Member, International Scientific Committee, 8th Int. Symp. on Flow Modelling and Turbulence Measurements, Tokyo, 2001.
42. Member, Editorial Board, Progress in Computational Fluid Dynamics.
43. Member, Advisory Board for JSME Int. Journal Series B.

Prizes

ASCE Karl Emil Hilgard Hydraulic Prize, 1979.
IMechE Edwin Walker Prize, 1988.
ASME Robert T. Knapp Prize, 1991.
Royal Aeronautical Society Busk Prize, 1992.

Publications

Text Book

Leschziner M A (2015), Statistical Turbulence Modelling for Fluid Dynamics – Demystified, 410 pages, Imperial College Press.

Metrics

Citations (1.10.2020): 9067
h-index: 51

Invited & Keynote Papers

1. Leschziner M A (1986), Finite-volume computation of recirculating flow with Reynolds-stress closures, invited paper, *Proc. 3rd Int. Conf. on Numerical Methods for Non-Linear Problems*, Dubrovnik, Croatia, pp. 847-868.
2. Leschziner M A (1988), Modelling recirculating flows by finite-volume methods - Current status and future directions, invited paper, *Refined Flow Modelling and Turbulence Measurements*, (Y. Iwasa, N. Tamai and A. Wada, eds.), Universal Academic Press, Tokyo, pp. 19-40.

3. Leschziner M A (1989), Second-moment closure for complex flows, invited paper, *Int. Forum on Mathematical Modelling of Processes in Energy Systems*, International Centre for Heat and Mass Transfer, Belgrade, Serbia.
4. Leschziner M A (1990), Modelling Engineering flows with Reynolds stress turbulence closure, invited review paper, *J. Wind Engineering and Industrial Aerodynamics*, **35**, pp. 21-47.
5. Leschziner M A (1991), Modelling strongly swirling flows with advanced turbulence closures, invited Paper, *Advances in Numerical Simulation Turbulent Flows*, ASME FED-Vol. **117**, pp. 1-11.
6. Leschziner, M A (1992), Computational modelling of complex flows - Expectations, reality and prospects, invited paper, *Japan J. Wind Engineering*, **52**, pp. 180-194, Tokyo, Japan.
7. Leschziner, M A (1992), Turbulence modelling challenges posed by complex flows, Invited paper, *ROOMVENT '92, Int. Conf. on Room Ventillation*, Lyngby, Denmark, **1**, pp. 1-28.
8. Leschziner M A (1993) Resolving complex strain fields with turbulence-transport models, invited paper, *Journées Thématique Ecoulements Turbulents EDF*, Paris.
9. Leschziner M A (1993) Modelling Aerodynamic Flows with Turbulence Transport Closures, invited paper, *5th Int. Symp. on Computational Fluid Dynamics*, **2**, pp. 132-140, Sendai, Japan.
10. Leschziner M A (1994) Refined turbulence modelling for engineering flows, invited keynote paper, *Computational Fluid Dynamics '94 - ECCOMAS* (S. Wagner, E.H. Hirschel, J. Periaux and R. Piva, eds.), Wiley, pp. 33-46.
11. Leschziner M A and Lien F-S (1995) Modelling turbulent transport in complex flows: Physical challenges, numerical implementation and predictive performance, Invited paper, *Proc. 5th ICFD Conference on Numerical Methods for Fluid Dynamics*, Oxford, UK, pp. 37-54.
12. Leschziner M A (1995), Modelling turbulence in physically complex flows, invited keynote paper, *XXIV IAHR Congress Hydra 2000*, **2**, pp 1-33 (M. Leschziner, ed.), Thomas Telford Publ., London, UK.
13. Leschziner M A (1996), On the role of advanced turbulence modelling in computational aerodynamics, keynote paper, *Proc. 36th Israel Annual Conference on Aerospace Sciences*, pp. A.37-A-56.
14. Leschziner M A (1996), Turbulence Modelling for internal engineering flows, keynote paper, *Proc. 2nd Int. Workshop on Modelling Crystal Growth*, Durbuy, Belgium, pp. 51-54.
15. Leschziner M A (1997) Turbulence modelling for complex flows - necessary and avoidable compromises, keynote paper, *Proc. 7th Int. Symp. on Computational Fluid Dynamics*, ISCFD 97 (F.G. Zhang, Ed), Beijing, China, pp.12-24.
16. Leschziner, M A and Lien, F-S, (1997) Computation of physically complex turbulent flows on parallel computers with a multiblock algorithm, Keynote paper, *Parallel CFD'97*, Manchester, May 1997, in Parallel Computational Fluid Dynamics (Emerson et al, eds.), North Holland, pp. 3-14.
17. Leschziner, M A (1998) Advances in modelling physically complex flows with anisotropy-resolving closures and related validation, invited paper, *CD-ROM Proc of FEDSM'98, ASME Fluids Engrg Division Summer Meeting*, June 21-25, Washington D.C., USA, Paper No. FEDSM98-5090, pp. 1-12.
18. Leschziner, M A (1998) Modelling complex turbulent flows, keynote paper, *EUROMECH 384 Colloquium on Steady and Unsteady Separated Flows*, July 6-9, University of Manchester, Paper published by Philosophical Transactions of the Royal

Society, Series A (2000) **358**, 1777, pp. 3247-3277.
19. Leschziner, M A (1998) Modelling and computation of industrial flows, invited paper *IUTAM-CISM meeting on Advanced Turbulent Flow Computations*, Udine, Italy, Sept. 1998, in Advanced Turbulent Flow Computations (R. Peyret, E. Krause, Eds), Springer, 2000, pp. 209-278.
20. Leschziner, M A (1999) Turbulence modelling for physically complex flows with anisotropy-resolving closures, invited paper, *International Conference on Mathematical Modelling of Non-linear Systems*, IIT, Kharagpur, India.
21. Leschziner, M A (2000) Aspects of turbulence modelling in complex strain fields, Invited lecture at *ASME FED Summer Meeting*, Fluids 2000, Boston, USA.
22. Leschziner, M A, Loyau, H and Apsley D D (2000) Prediction of shock/boundary-layer interaction with non-linear eddy-viscosity models, invited paper, *Proc. European Congress on Computational Methods in Applied Sciences and Engineering*, CD-ROM Proceedings ECCOMAS 2000, Barcelona, Spain.
23. Leschziner, M A (2001) Non-linear eddy-viscosity modelling of shock-induced boundary-layer separation, invited paper, ASME SM2001-18145, *Proc. ASME FED 2001*, New Orleans, USA.
24. Bonfiglioli, A and Leschziner, M A (2001), A comparative study of alternative reconstruction schemes for flux evaluation within a pressure-based fully-collocated unstructured FV scheme for incompressible flow, invited paper, *Proc., ECCOMAS CFD 2001 Conference*, CDRom, Swansea, UK.
25. Leschziner, M A (2002), At the crossroads of turbulence modeling and turbulence simulation: opportunities and challenges, keynote paper, *Advances in Fluid Modelling and Turbulence Measurements*, (H. Ninokata, A. Wada and N. Tanaka, eds.), World Scientific publishers, pp. 3-20.
26. Leschziner, M A and Drikakis D (2002), Turbulence modelling and turbulent-flow computation in Aeronautics, invited review paper, *The Aeronautical Journal*, **106**, pp. 349-384.
27. Leschziner, M A (2003), The challenge of modeling and simulating flow separation from continuous surfaces, keynote paper, *Proc. 12th Int. Conference on Fluid Flow Technologies (CMFF'03)*, Budapest, Hungary.
28. Leschziner, M A (2003), The Challenge of Modelling and Simulating Separation from Continuous Surfaces, keynote paper, 13th *Software Cradle Users Conference*, Yokohama, Japan.
29. Leschziner, M A (2004), The exploitation of Large Eddy Simulation for turbulence-model improvements and validation, keynote paper, *7th Annual CFD Symposium CFD Division of AeSI*, Bangalore, India.
30. Hanjalic K, Hadziabdic M, Temmerman L, Leschziner M A (2004), Merging LES and RANS strategies: zonal or seamless coupling?; invited paper *Proc. Direct and Large Eddy Simulation 5*, (R. Friedrich, B.J. Guerts and O. Metais, eds.), Kluwer Academic Publishers, pp. 451-464.
31. Leschziner, M A (2005), At and around the LES-RANS 'Interface', keynote paper, *iTi Conference on Turbulence*, Bad Zwischenahn, Germany.
32. Leschziner, M A (2005), Capabilities and limitations of computational methods combining Large Eddy Simulation with approximate wall-layer models for predicting separated turbulent near-wall flows, keynote paper, *Int. Symposium on Frontiers of Computational Science 2005*, Nagoya, Japan.
33. Leschziner, M A (2006), Modelling turbulent separated flow in the context of aerodynamic applications, invited paper, *Fluid Dynamics Research*, **38**, pp. 174-210.
34. Leschziner, M A (2006), The challenge of modeling and simulating separation from

curved surfaces, keynote lecture, *STAB Symposium of the German Working Group on Fluid Mechanics*, Darmstadt, Germany.

35. Leschziner, M A (2007), Statistical modelling and simulation of turbulent flows: limits, hard lessons and symbiotic relationships, keynote paper, *Annual Meeting of the Japan Society of Fluid Mechanics*, Tokyo, Japan.
36. Leschziner, M A (2007), Simulating flow separation from curved surfaces: routes to overcoming the Reynolds number barrier, keynote lecture, *JSME Annual Conference*, Hiroshima, Japan.
37. Leschziner, M A (2007), The challenge of modelling and simulating turbulent separation from curved surfaces, keynote paper, *14th National CFD Conference*, Taiwan.
38. Leschziner, M A, Avdis A and Wu D (2007), Simulation of synthetic jets in the context of controlling separated flows, keynote paper, *Third Asian-Pacific Congress on Computational Mechanics*, Kyoto (Symposium sponsored by 21st Century COE Programme in Mechanical Systems Innovation).
39. Leschziner, M A, Wu, D and Avdis, A (2008), Simulation of Synthetic Jets in the Context of Controlling Separated Flow, invited paper, *LLES-AID Workshop in LES in Science and Technology*, April, 2008, University of Poznan, Poland.
40. Leschziner, M A (2008), Simulation of separation from continuous surfaces: some lessons on capabilities and limitations, invited paper, *8th World Congress on Computational Mechanics (WCCM8), 5th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2008)*, July 2008, Venice, Italy.
41. Leschziner, M A (2009), Fasten your seatbelts, turbulence ahead – but not Necessarily as you know it, *Annual Percy Pilcher Memorial Lecture*, University of Glasgow, UK.
42. Leschziner, M A, Li N and Tessicini, F, Simulating Flow Separation from Continuous Surfaces: Routes to Overcoming the Reynolds Number Barrier, invited paper, *Royal Society Meeting on Applied Large Eddy Simulation*.
43. Leschziner, M A (2009), LES of wall-proximate separated flows at elevated Reynolds numbers, keynote presentation, *Euromech Colloquium 504*, Technical University of Munich, Germany.
44. Leschziner, M A, Touber, E (2010), On the physics of streamwise friction-drag reduction by spanwise oscillatory wall motion – insight derived from turbulence simulations., Keynote paper, *XIX Polish National Fluid Dynamics Conference*, Poznan, Poland.
45. Leschziner, M A (2010), The simulation of slot and round jets in the context of boundary-layer-separation control, Invited paper, *Proc. 2nd Int. Workshop on Advances in Computational Mechanics, Japan Society of Computational Engineering and Science*, pp. 95-96, Yokohama, Japan.
46. Leschziner, M A (2011) Single-point second-moment turbulence models – why, where and where not, Invited paper, *Workshop: Models versus physical laws/first principles, or why models work*, Wolfgang Pauli Institute, Vienna, Austria.
47. Leschziner, M A, Lardeau, S, Touber, E and Agostini, L (2012) The physics of turbulent friction-drag reduction by oscillatory spanwise wall motion, keynote paper, *JSME-CMD Int. Computational Mechanics Symposium*, Kobe, Japan.
48. Leschziner, M A, Agostini, L and Touber, E (2013) On the physics of streamwise friction-drag reduction by spanwise oscillatory wall motion – insight derived from turbulence simulations, keynote paper, *37th National Conf. on Theoretical and Applied Mechanics and 1st International Conference on Mechanics*, National Tsing Hua University, Taiwan.
49. Leschziner, M.A. (2016), On the universality of near-wall turbulence in the presence of energetic outer structures, keynote paper, VII European Congress on Computational

Methods in Applied Sciences and Engineering, Crete, Greece.

50. Leschziner, M.A. (2018) DNS-derived large-scale/small-scale interactions in near-wall turbulence at elevated Reynolds numbers, keynote paper, 10th Int. Conf. on CFD, Barcelona, Spain.
51. Leschziner, M.A. (2018) The Influence of Outer Large-Scale Structures on Wall Friction and its Control, keynote paper, 12th Asian Computational Fluid Dynamics Conference (ACFD12), Taiwan.

Journal Papers

52. Launder B E, Leschziner M A (1978), Flow in finite-width thrust bearings including inertial effects: I-laminar flow, *ASME J. of Lubrication Technology*, 100, pp. 330-338.
53. Launder B E, Leschziner M A (1978), Flow in finite-width thrust bearings including inertial effects: II-turbulent flow, *ASME J. of Lubrication Technology*, 100, pp. 339-345.
54. Leschziner M A, Rodi, W (1979), "Calculation of strongly curved channel flow", *ASCE J. of the Hydraulic Div.*, DY10, pp. 1297 -1319.
55. Leschziner M A, (1980), Practical Evaluation of three finite-difference schemes for the computation of steady-state recirculating flows, *Computer Meths. Appl. Mech. and Eng.*, 23, pp. 293-312.
56. Leschziner M A, Rodi W (1981), Calculation of annular and twin parallel jets using various discretization schemes and turbulence-model variations, *ASME J. Fluids Eng.*, 103, pp. 352-360.
57. Leschziner M A, Rodi W (1983), Calculation of a heated water discharge, *ASCE J. of Hydraulic Engineering*, 109, pp. 1380-1384.
58. Leschziner M A, Rodi W, (1985), Computation of strongly swirling axi-symmetric free jets, *J. of AIAA*, 20, pp. 1742-1747.
59. Huang P G, Launder B E, Leschziner M A (1985), Discretization of non-linear convection processes: a broad range comparison of four schemes, *Computer Meths. Appl. Mech. and Eng.*, 48, pp. 1-24.
60. Fu S, Huang P G, Launder B E, Leschziner M A (1988), A comparison of algebraic and differential second-moment closures for axisymmetric turbulent shear flows with and without swirl, *ASME Journal of Fluids Eng*, 110, pp. 216-222.
61. Leschziner M A, Kobayashi T (1988), Second-moment closures for recirculating and strongly swirling flows: Part 1. Turbulence Models, *Seisan-Kenkyu*, 40, Institute of Industrial Science, University of Tokyo, pp. 222-228.
62. Leschziner M A, Kobayashi T (1988), Second-moment closures for recirculating and strongly swirling flows: Part 2. Applications, *Seisan-Kenkyu*, 40, Institute of Industrial Science, University of Tokyo, pp. 261-268.
63. Leschziner M A (1989), Modelling recirculating flows by finite-volume methods - Current status and future directions, invited review paper, *Int. J. Heat and Fluid Flow*, 10, pp. 186-202*.
64. Zhu J, Leschziner M A, (1988), A local oscillation damping algorithm for high-order convection schemes", *Comp. Meths. Appl. Mech. Eng.*, 67, pp. 355-366.
65. Hogg S, Leschziner M A (1989), Computation of highly swirling confined flow with a Reynolds-stress turbulence model, *J. AIAA*, 27, pp. 57-67.
66. Leschziner M A, Dimitriadis K P, (1989), Computation of three-dimensional turbulent flow in non-orthogonal junctions by a branch-coupling method, *Computers and Fluids*, 17, pp. 371-395.
67. Hogg S, Leschziner M A (1989), Second-moment closure calculations of strongly swirling confined flow with large density gradients, *Int. J. Heat and Fluid Flow*, 10, pp.

16-27.
68. Leschziner, M A, Dimitriadis, K P and Page, G (1992), Modelling shock-wave / boundary-layer interaction with a cell-vertex scheme and transport models of turbulence, *Royal Aero. Soc. Aeronautical Journal*, 97, pp. 43-61.
69. Lien F S and Leschziner M A (1993) A general non-orthogonal finite-volume algorithm for turbulent flow at all speeds incorporating second-moment turbulence-transport closure, Part 1: Computational Implementation, *Comp. Meth. Appl. Mech. Enggn.*, 114, pp. 123-148.
70. Lien F S and Leschziner M A (1993) A general non-orthogonal finite-volume algorithm for turbulent flow at all speeds incorporating second-moment turbulence-transport closure, Part 2: Applications, *Comp. Meth. Appl. Mech. Enggn.*, 114, pp. 149-167.
71. Lin C A and Leschziner M A (1993) Three-dimensional computation of transient interaction between radially injected jet and swirling cross flow using second-moment closure, *Journal of Computational Fluid Dynamics*, 1, pp. 419-428.
72. Lien, F S and Leschziner M A (1993) A pressure-velocity solution strategy for compressible flow and its application to shock / boundary-layer interaction using second-moment turbulence closure, *ASME J. Fluids Engineering.*, 115, pp. 717-725.
73. Leschziner M A (1993) Computational modelling of complex turbulent flow - expectations, reality and prospects, *J. Wind Engineering and Industrial Aerodynamics*, 46, pp. 37-51.
74. Lien F S and Leschziner M A (1993) Assessment of turbulence-transport models including non-linear RNG eddy-viscosity formulation and second-moment closure for flow over a backward-facing step, *Computers and Fluids*, 23, pp. 983-1004.
75. Leschziner M A and Ince N Z (1994) Computational modelling of three-dimensional impinging jets with and without cross flow using second-moment closure, *Computers and Fluids*, 24, pp. 811-832.
76. Lien, F S and Leschziner M A (1994) Multigrid acceleration for turbulent flow with a non-orthogonal collocated scheme, *Num. Meths. Appl. Mech. Enggn.*, 118, pp. 351-371.
77. Lien F S and Leschziner M A (1994) Upstream monotonic interpolation for scalar transport with application to complex turbulent flows, *Int. J. Num. Meths. in Fluids*, 19, pp. 527-548.
78. Lu Cheng, Craft T J, Launder B E and Leschziner M A (1995) Spirally fluted tubing: Prediction and measurement, *La Houille Blanche*, 1, pp. 86 – 92.
79. Lien F S and Leschziner M A (1995) Modelling 2D separation from high-lift aerofoil with non-linear eddy-viscosity model and second-moment closure, *The Aeronautical Journal*, 99, pp. 125-144.
80. Leschziner M A (1995) Computation of aerodynamic flows with turbulence transport models based on second-moment closure, *Computers and Fluids*, 24, pp. 377-392.
81. Smith R J and Leschziner M A (1996) Automatic grid-generation for complex geometries, *The Aeronautical Journal*, paper 2148, pp.7-14.
82. Lien F S and Leschziner M A (1996) Second-moment closure for three-dimensional turbulent flow around and within complex geometries, *Computers and Fluids*, 25, pp. 237-262.
83. Thomadakis M and Leschziner M (1996) A pressure-correction method for the solution of incompressible viscous flows on unstructured grids, *Int. J. Num. Meths. in Fluids*, 22, pp. 581-601.
84. Lien F S, Chen W L and Leschziner M A (1996) A multi-block implementation of a non-orthogonal, collocated finite-volume algorithm for complex turbulent flows, *Int. J. Num. Meths. in Fluids*, 23, pp. 567-588.
85. Chen W L, Lien F S and Leschziner M A (1997) Local mesh refinement within a multi-

block structured-grid scheme for general flows, *Comput. Methods in Appl. Mech. Enggn*., 144, pp. 327-369.
86. Xu D, Leschziner M A, Khoo B E and Shu C (1997) Numerical prediction of separation and reattachment of turbulent flow in axisymmetric diffuser, *Computers and Fluids*, 26, No. 4, pp. 417-423.
87. Lien F-S and Leschziner M A (1997) Computational modelling of multiple vortical separation from streamlined body at high incidence, *The Aeronautical Journal*, 101, pp. 269-275.
88. Batten P, Leschziner M A and Goldberg U C (1997) Average-state Jacobians and implicit methods for compressible viscous and turbulent flows, *J Comp. Phys.*, 137, pp. 38-78.
89. Apsley D D, Chen W L, Leschziner M A and Lien F S (1997) Non-linear eddy-viscosity modelling for separated flows, *J. Hydraulic Res.*, 35, pp. 723-748.
90. Chen, W-L, Lien, F-S and Leschziner, M A, (1998) Non-linear eddy-viscosity modelling of transitional boundary layers pertinent to turbomachine aerodynamics, *Int. J. Heat and Fluid Flow*, 19, pp. 297-306.
91. Chen W L, Lien F S and Leschziner M A (1998) Computational prediction of flow around highly-loaded compressor-cascade blades with non-linear eddy-viscosity models, *Int. J. Heat and Fluid Flow*, 19, pp. 307-319.
92. Apsley D D and Leschziner M A (1998) A new low-Re non-linear two-equation turbulence model for complex flows, *Int. J. Heat and Fluid Flow*, 19, pp. 209-222.
93. Loyau H, Batten, P and Leschziner, M A (1998) Modelling shock/boundary-layer interaction with non-linear eddy-viscosity closures, *Flow Turbulence & Combustion*, 60, pp. 257-282.
94. Batten, P, Craft, T J, Leschziner, M A and Loyau, H. (1999) Reynolds-stress-transport modelling for compressible aerodynamics applications, *J. AIAA*, Vol 37, pp. 775-804.
95. Lien, F.S. and Leschziner, M A, (1999), Computational modelling of a transitional 3D turbine-cascade flow using a modified low-Re k-ε model and a multi-block scheme, *Int. J. Computational Fluid Dynamics*, 12, pp. 1-15.
96. Zhou, Q and Leschziner, M A (1999) An improved particle-locating algorithm for Eulerian-Langrangian computations of two-phase flows in general coordinates, *J. Multiphase Flow*, 25, pp. 813-825.
97. Iacovides, H., Leschziner, M A and Li H-Y (2000) The computation of axi-symmetric rotor-stator flows related to cooling passages of electrical generators, *NAFEMS Int. J of CFD Cases Studies*, 2, pp. 3-17.
98. Leschziner, M A, Batten, P and Loyau, H (2000), Modelling shock-affected near-wall flows with anisotropy-resolving turbulence closures, *Int. J. Heat and Fluid Flow*, 21, pp. 239-251.
99. Leschziner, M A (2000), Turbulence modelling for separated flows with anisotropy-resolving closures, *Phil Trans. Royal Society, Series A*, 378, 1777, pp. 3247-3277.
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