SHORT CV

LAST NAME:	LEKAKIS
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OFFICE ADDRESS

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EDUCATION

Mechanical Engineering, University of Illinois, Urbana	Ph.D.	1982-1987	USA
Mechanical Engineering, University of Illinois, Urbana	M.Sc.	1979-1982	USA
Mechanical Engineering, George Washington University Washington D.C.	B.S (Honors)		USA

EXPERTISE

Development of measurement techniques for turbulent flows, thermal anemometry, optical laser methods (LDV, Particle Image Velocimetry (PIV)), Digital signal Processing, Statistical theory and modeling of turbulent flows, Aerodynamics, Transport Phenomena and CFD.

PROFESIONAL EXPERIENCE

Mechanical Engineering Department Techological Education Institute of Pireaus P.Ralli & Thivon 250 12444 Egaleo, Athens Greece	Associate Professor in Experimental Fluid Mechanics & Heat Transfer (Transport Phenomena)	2003-present
Hellenic Air Force Academy	Lecturer in Experimental Aerodynamics	2000-2003
Mechanical Engineering Department University of Thessaly, Volos, Greece	Adjunt Assistant Professor in Experimental Fluid Mechanics	1996-2002
University of Erlangen-Nuernberg, Germany	Group Leader in Experimental Turbulence Research	1991-1996
Imperial College, London, U.K.	Research Fellow in CFD	1989-1991
Mechanical Engineering Department University of Iowa and Research Scientist at Iowa Institute of Hydraulics Research	Assistant Professor in Experimental Fluid Mechanics	1987-1989
Mechanical Engineering Department University of Illinois, USA	Research or Teaching Assistant	1979-1987
US Army Construction Research Laboratory, Urbana, USA	Part-time Employment	1985-1986

JOURNAL REVIEWER

Measurement Science & Technology,
Exper. Thermal Fluid Science,
J. of Experiments in Fluids,
J. of Flow Measurement and Instrumentation, and

International Journal of Solids and Structures.

PROFESSIONAL SOCIETIES

American Institute of Aeronautics and Astronautics, American Society of Mechanical Engineers, American Institute of Physics, Τεχνικό Επιμελητήριο Ελλάδος.

CONSULTING/INDUSTRIAL EXPERIENCE

1987 - Consultant to Caterpillar Tractor Co., Peoria, IL on 3-D velocity measurements for noise reduction on fan systems.
1986 - Consultant to TSI, Inc., St. Paul, MN on new implementations of hot-wire anemometry.

TEACHING EXPERIENCE

2007-2009	Fluid Mechanics, Mechanical Engineering, TEI Pireaus.
2003-2010	Mechanical Measurements, Mechanical Engineering, TEI Pireaus
2003-2005	Hydraulic Machines, Mechanical Engineering, TEI Pireaus.
2001-2002	Tribology *(Lubrication)*, Mechanical Engineering, TEI Pireaus.
2001-2003	English Technical Terminology, Hellenic Air Force Academy.
2000-2004	Steam Plants- Steam Turbines(Design and Optimisation of Thermal Systems), Mechanical Engineering, TEI Pireaus.
2000-2003	Fluid Mechanics, Aerospace Engineering, Hellenic Air Force Academy.
2000-2003	Aerodynamics for Pilots, Hellenic Air Force Academy.
2001 Spring.	Mechanical Measurements in Thermal Sciences (9 Lectures) in M.Sc course in Mechanical Engineering, University of Thessaly.
2000-2002 Spring	Mechanical Measurements in Thermal Sciences, Mechanical Engineering, University of Thessaly.
2000 Spring & 1999 Spring.	Design and Optimisation of Thermal Systems, Mechanical Engineering, University of Thessaly.
1999 Spring	Mechanical Measurements in Thermal Sciences (12 Lectures) n M.Sc course in Mechanical Engineering, University of Thessaly.
1999 Spring & 1999 Winter	Analysis and Simulation of Industrial Flows (9 Lectures) in M.Sc course in Mechanical Engineering, University of Thessaly.
1998 Winter & 1999 Winter	Energy Conversion Systems (6 Lectures in Design and Optimisation of Thermal Systems in M.Sc course in Mechanical Engineering, University of Thessaly.
Spring & Winter 1998 & Winter 1999	Fluid Mechanics II, Mechanical Engineering, University of Thessaly.
1997	Turbomachinery, Mechanical Engineering, University of Thessaly.
1997 Winter	Numerical Analysis, Mechanical Engineering, University of Thessaly.
Winter 2000,1998, 1999& Spring 1997	Computational Methods in Thermal Sciences (CFD), Mechanical Engineering, University of Thessaly.
1992 & 1995	Organizing and lecturing a Short Course in Turbulence at University of Erlangen-Nuernberg, Germany
1987-1989	Intermediate Fluid Mechanics at graduate level (fall 1987 & Summer 1988) Mechanics of Fluids and Transport Processes at undergraduate level (Spring 1988), and Thermodynamics at undergraduate level (Assistant Professor),University of Iowa, USA
1978-1983	Lab instructor/teaching assistant for the following courses (Teaching Assistant): Thermal Science Lab, Thermodynamics, Gas Dynamics, The University of Illinois, USA.

SUPERVISION

Member of the three-member advising committee and co-supervisor of doctoral thesis of Kalovrekti, Constanin, University of Piraeus (in progress).
co-supervisor of doctoral thesis of Vassilopoulos, Constanin, Cranfield University (in progress).
5 Diploma Theses TEI Piraeus
3 Diploma Theses, 1 Postdoctoral and 1 Doctoral Thesis at University of Erlangen, Germany (1992-1995)
Member of the five-member advising committee and co-supervisor of doctoral thesis of Sarris, Ioannis and 6 Diploma Theses at University of Thessaly
Partial supervision of an M.Sc. thesis at the University of Illinois.

AWARDS

2nd prize of the Greek Society of Mechanical Engineers for the Diploma Thesis of my student Vassilopoulos Constantin entitled: "Shearless mixing layer downstream of a combination of different grid sizes", University of Thessaly 2002.

1st accolade of the Greek Society of Mechanical Engineers for the Diploma Thesis of my student Zisiopoulos Apostolis entitled: "Measurement of the shear stress in the flow between two parallel plates using integrated thermal sensors", University of Thessaly 2002.

RESPONSIBLE FOR FUNDED RESEARCH

2005: "Tribological behavior of modern metalic materials with their surfaces thermally treated or film coated" Greek Government funded program ARCIMEDES.

2004: "Optimization of an ICE engine operation through continous monitoring of the composition of its exhaust gases" Greek Government funded program ARCIMEDES.

1998: Scientific co-responsible of a three-year project on "Modeling and control of the calcination processes during cement production" in cooperation with the cement company HERCULES S.A., supported by the Greek Government.

1994: Principal investigator of a one-year project DFG-Gz Le 911/1-1 entitled: "Messungen von Zweipunkt-Korrelationen mit Hilfe von 2-punkt-LDA und HDA".

1994-5: Co-principal investigator for redesigning the SIEMENS-dental turbine.

1993-5: Responsible and coordinator of a two-year research cooperation program between LSTM-Erlangen Germany and KTH-Stockholm Sweden. Supported by Deutscher Akademischer Austauschdienst (Project Nr. 313/S-PPP-1-93/5/cs).

1992: Scientific responsible and coordinator of a two-year European research project BRITE-EURAM 2076/2032 entitled: "Efficient Turbulence Models for Aeronautics (ETMA)". Participation of seven countries.

1992: Scientific responsible of an 18-month training project within the BRITE-EURAM program, trainee: Dr. George Papadopoulos.

1992: Scientific responsible of an 18-month Gonrand Adenauer Stiftung research grant of doctoral candidate Thoralf Unger.

1992: Scientific responsible of a 6-month training project within EU-TEMPUS program, trainee: Mr. Matjaz Ramsek Ph.D. candidate of University of Maribor, Slovenia.

1991: Scientific responsible of a three-year European research project JOULE-CT91-0077 entitled: "Study of Turbulent Transport Phenomena in Combustion". Participation of four countries.

PRODUCT DEVELOPMENT

The triple hot-wire probe together with the associated software for data processing, that I developed in my Ph.D, are marketed worldwide by TSI, Inc. of St. Paul, Minnesota.

PUBLICATIONS

Books

1.-Lekakis I., 1998 Hitzdraht-Anemometrie für Geschwindigkeitsmessungen in Unterschallströmungen, Sensortechnik: Handbuch für Praxis und Wissenshaft, H.-R. Trankler und E. Obermeier (eds.), Springer-Verlag, pp837-856.

Refereed Journals

2.-Lekakis I., 1996 Review: Calibration and signal interpretation for single- and multiple hot-wire/hot-film probes, J. Meas. Sci. Techno., 7, 1313-1333.

3.-Lekakis I.C., Adrian R.J., and Jones B.J., "Measurement of velocity vectors with non-orthogonal triple sensor probes." Exper. in Fluids, 7, 228-240, 1989.

4.-Durst F., Kikura H., Lekakis I., Jovanovic and Ye Q. 1996 Wall shear stress determination from near-wall mean velocity data in turbulent pipe and channel flows, Exper. in Fluids, 20, 417-428.

5.-Lekakis I., Kattis, M.A., Providas, E., and Kalamkarov, A.L., 2000 The disturbance of heat and thermal stresses in composites with partially bonded inclusions, Composites B Engineering J., 31, 21-27.

6.-Sarris, I.E., Lekakis, I., and Vlachos, N.S., 2002 Natural Convection in a 2D Enclosure with Sinusoidal Upper Wall Temperature, Numerical Heat Transfer, Part A, 42, 513-530.

7.-Sarris, I.E., Lekakis, I., and Vlachos, N.S., 2004 Natural convection in rectangular tanks heated locally from below, Int. J. Heat Mass Transfer, 47, 3549-3563.

8.-Papadopoulos, Th., Lekakis, I., Vlachos, N.S., and Lekas, Th., 2007 Influence of an airfoil's leading edge configuration with low radar signature on its aerodynamic characteristics, to be submitted to AIAA J.

9. Hatziapostolou, A., Raptis, G., Mourlas, A., Lekakis, I., and Antoniou, S. 2008 CFD modeling of the in-cylinder flow and combustion in a variable-compression laboratory Otto engine, *Applied Research Review Journal* of TEI of Piraeus.

10. Mourlas, A., Kaltsogianni, M., Lekakis, I., Antoniou, S., Hatziapostolou, A., and Tsamis, Ch., 2008 Comparative study of integrated micromechanical sensor with industrial sensors in measuring the exhaust gases of an Otto engine, *Applied Research Review Journal* of TEI of Piraeus (in Greek).

Conference Publications

11.-Dantzig J.A., Chao L.S., and Lekakis I.C., "The effect of shear flows on solidification microstructures," Proceedings of ASME-JSME Thermal Engineering and ASME-JSMI-JSES Solar Energy Conferences, Hawaii, March 22-27, 1987.

12.-Lekakis I.C., Durst F., and Sender J., 1994 LDA measurements in the near-wall region of a turbulent axisymmetric sudden expansion, 7TH Int. Symp. on Appl. on Laser Techn. to Fluid Mechanics, Lisbon, Portugal.

13.-Dervieux A., and Lekakis I., 1996 ETMA: Efficient turbulence models for aeronautics, ECCOMAS 96, John Wiley, ISBN: 0471-9669-24.

14.-Papadopoulos G., Lekakis I., and Durst F., 1997 Reynolds number asymptotic covariance for turbulent pipe flow past a sudden expansion, ASME Fluids Engineering Division Summer Meeting, Vancouver, Canada, FEDSM97-3323, pp1-9.

15.-Papadopoulos G., Lekakis I., and Durst F., 1994 Reynolds number effects on the pressure distribution of fully developed, suddenly expanding pipe flow, Proc. 9th DGLR-Fach-Symp. der AG STAB, Univ. Erlangen-Nürnberg.

16.-Adrian R.J. and Lekakis I.C., "A scale gap in the structure of moderate Reynolds number turbulence," Bulletin of the APS Society, Cornell University, November 21-23, 1991.

17. -Katsavos, N., Lekakis, I., and Vlachos, N.S., 1999 Natural convection in a glass-melting tank, 6th National Conference of the Institute of Solar Technology (in Greek).

18. - Sarris, I.E., Katsavos, N., Lekakis, I., and Vlachos, N.S., 1999 The influence of combustion in the optimization of glass melt, 6th National Conference of the Institute of Solar Technology (in Greek).

19. -Sarris, I. E., I. Lekakis, and N.S. Vlachos, '*Effect of burner arrangement on glass melt circulation'*, Intl. Congress on Glass, Edinburgh, Vol. 2, pp. 127, 2001

20.-Kouvakas, N., Lekakis, I., and Vlachos, N.S., 2002 "Shear-free, grid generated turbulence mixing layer", 2nd Conference on Research Activities in Fluid Mechanics in Greece, 22nd May 2000 (in Greek).

21.- Sarris, I.E., Lekakis, I., and Vlachos, N.S., Improving the mixing of glass melt using a heated orthogonal prism on the bottom of the glass tank, 2nd Conference on Research Activities in Fluid Mechanics in Greece, 22nd May 2000 (in Greek).

22.- Katsavos, N., ., Lekakis, I., Pappa, I.G., Kalovrektis, C., and Vlachos, N.S., Calibration of a Particle Image Velocimetry (PIV) system for natural convection studies, 2nd Conference on Research Activities in Fluid Mechanics in Greece, 22nd May 2000 (in Greek).

23.-Katsavos, N., ., Lekakis, I., Pappa, I.G., Sarris, I.E, and Vlachos, N.S., 2000 "Development of a PIV system for the study of glass melt flow", First Balkan Conference on Glass Science & Technology, 9-10 October, Volos, Greece.

24.-Katsavos, N., Pappa, I.G., Sarris, I.E., Lekakis, I., and Vlachos, N.S., 2001 "Study of Natural Convection from a Line Heat Source of High Prandtl Number Fluids with Variable Viscosity in a Tank", 5th World Conference on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics, Thessaloniki, 24-28 September.

25.- Papadopoulos, Th., Lekakis, I., Vlachos, N.S., and Lekas, Th., 2002 Influence of an airfoil's leading edge configuration with low radar signature on its aerodynamic characteristics, 3rd Conference on Research Activities in Fluid Mechanics in Greece, 2-3 October 2002 (in Greek).

26. -Sarris, I.E., I. Lekakis and N. Vlachos, '*Control of glass melt recirculation by a heated strip on the tank bottom*', 1st Balkan Conference on Glass Science & Technology, Volos, Greece, pp. 379-388, 9-10 Oct. 2000

27. Zisiopoulos, A., Christodoulakis, M., Lekakis, I., and Vlachos, N.S., 2002 Measurements of wall shear stress on the wall of the flow between parallel plates using integrated thermal sensors, 3rd Conference on Research Activities in Fluid Mechanics in Greece, 2-3 October 2002 (in Greek).

28. Vaxevanidis, N.M., Mourlas, A., Bobolis, V., Papazoglou, T., Sideris, J., Kaltsogianni, M., Lekakis, J., and Antoniou, S.S., The Influence of Shot Peening Parameters on the Friction and Wear Characteristics of Peened Tool Steels, 6th International Conference "Research and Development in Mechanical Industry" RaDMI 2007, 16-20 Sept. 2007, Belgrade, Serbia.

29. Vaxevanidis, N.M., Mourlas, A., Papazoglou, T., Sideris, J., Kaltsogianni, M., Lekakis, J., and Antoniou, S.S., Tribological Behhavior nof Molybdenium and Chromium Oxide Plasma Sprayed C|oatings on Mild Steel, 6th International Conference "Research and Development in Mechanical Industry" RaDMI 2006, 13-17 Sept. 2006, Budva, Montenegro.

Conferences without Proceedings

30.-Lekakis I.C., Adrian R.J., and Jones B.J., "Joint probability density functions for all three-velocity components in turbulent pipe flow," 5th STAB-Workshop in Göttingen on November 13-15 1991.

31.-Lekakis I.C., Adrian R.J., and Jones B.J., "Time delay correlations of the Reynolds strees tensor in fully developed turbulent pipe flow," 9th Bien. Symp. on Turbulence, Univ. Missouri-Rolla, 1985.

Theses

32.-Lekakis I.C., "Coherent structures in fully developed turbulent pipe flow," Ph.D. Thesis, Department of Mechanical and Industrial Engineering, University of Illinois at

Urbana-Champaign, Urbana, Illinois, 1988.

33.-Lekakis I.C., "Reattachment of a two-dimensional turbulent jet to an offset parallel plate," 1982, MSc Thesis, Department of Mechanical and Industrial Engineering, University of Illinois at Urbana-Champaign, Urbana, Illinois.

Selective Technical Reports

Lekakis I., Diorinos M., Unger T., and Land S., 1994 Data acquisition and management System (DAMS) for hot-wire measurements: A users guide, Rept. LSTM 418/E/94, Univ. of Erlangen, Germany.

Lekakis I., Lienhart H., and Durst F., 1994 Proposals on the design of SIEMENS dental turbine, Rept. LSTM 386/I/93, Univ. of Erlangen, Germany.

Lekakis I.C., Gosman A.D., and Gibson M.M., 1995 Critical evaluation of near-wall zero and one-equation turbulence models, Imperial College Report.

Trimis D., Durst F., and Lekakis I.C., 1992-1993 Study of turbulent transport phenomena in combustion. Three Periodic Reports to European Commission.

Durst F., Kikura H., Lekakis I., Jovanovic, and Ye, Q. 1995 Wall shear stress determination from near-wall mean velocity data in turbulent pipe and channel flows, Rept. LSTM 428/E/95, Univ. of Erlangen, Germany.

Lekakis, I., 1996 Messungen von zweipunkt-Korrelationen mit Hilfe von 2-Punkt-LDA und HDA, Bericht an die DFG.

Katsavos, N., and Lekakis, I., 1998 Model of a glass-melting tank, Final Report to GSRT, Greece.

Lekakis, I., and Katsavos, N., 1998 Energy balance of the furnace of a glass-melting tank, Final Report to GSRT, Greece.