



University
of Cyprus

RESEARCH AT THE UNIVERSITY OF CYPRUS

RESEARCH PROFILE AND PUBLICATIONS 2005-2007

FACULTY OF ECONOMICS AND MANAGEMENT

FACULTY OF ENGINEERING

FACULTY OF HUMANITIES

FACULTY OF LETTERS

FACULTY OF PURE AND APPLIED SCIENCES

FACULTY OF SOCIAL SCIENCES AND EDUCATION





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CONTENTS

Introduction	5
Message from the Dean	7
Department of Civil and Environmental Engineering	9
Department of Civil and Environmental Engineering (Programme of Studies in Architecture)	33
Department of Electrical and Computer Engineering	45
Department of Mechanical and Manufacturing Engineering	75
Appendices	99
Abbreviations	100
Academic Staff Index	101

INTRODUCTION

This publication lists the research activity of the Faculty of Engineering of the University of Cyprus undertaken between 2005-2007. It is the first time that the publication on the research activity is presented separately for each faculty of the University of Cyprus. The book presents information for each member of the Faculty's academic staff that is directly or indirectly related to research, such as membership in professional societies, international organizations or editorial boards, and participation in research programmes. The internal research programmes listed in this publication are programmes that have been approved by the Senate of the University of Cyprus.

Publications make up a sizeable part of the book and only published books, chapters and articles are included, while publications "in press" or "forthcoming" are not. The number of journal publications and conference proceedings is limited to a selection of the best ten publications by each member of the academic staff. For the first time, research profiles also include a new optional category named "distinguished publications", which includes a maximum of three selected publications before 2005 that are considered by members of the academic staff to be of high importance for their academic career.

Moreover, the number of authors in all publications is limited to three. In cases when authors are more than three, the symbol "et al" signifies that the member of the academic staff is listed first in the publication title, but a number of other not-listed authors also exist. The symbol ".." signifies that the member of the academic staff is listed second or third in the publication title, but a number of other not-listed authors also exist. Regarding electronic publications, only those accessible through a website are listed.

Members of the academic staff are listed in alphabetical order within departments and the information outlined in all research profiles is based on electronic data received directly from members of the academic staff.

The book contains two appendices:

- Appendix I presents a list of abbreviated terms listed in this publication.
- Appendix II lists an index of the academic staff of the Faculty of Engineering in alphabetical order by surname.

For more information on the research activity of the Faculty of Engineering, visit the University of Cyprus website at www.ucy.ac.cy.

MESSAGE FROM THE DEAN

Established in 2001, the Faculty of Engineering consists of three departments and one Programme of Studies, namely, the Department of Electrical and Computer Engineering, the Department of Mechanical and Manufacturing Engineering, the Department of Civil and Environmental Engineering and the Programme of Architecture. The three departments accepted their first undergraduate students in 2003, while the first students in the Programme of Architecture were accepted in 2005. Currently, all departments offer undergraduate programmes of study as well as postgraduate programmes of study.

The Faculty of Engineering aspires to achieve excellence in undergraduate and graduate education, research and public service. Its ultimate goal is to serve as a beacon for higher learning in Cyprus society, by:

1. Providing a collaborative environment for research and education that inspires students to reach high levels of creativity, intellectual thinking and personal growth;
2. Offering state-of-the art functionality for research that encourages and supports competition and leads to the enhancement of the current body of knowledge in theoretical, applied and experimental research;
3. Facilitating public awareness for high technological developments and the transfer of knowledge for the benefit of Cypriot society; and
4. Serving as a depository of advanced knowledge.

Charalambos Charalambous
Acting Dean

FACULTY OF ENGINEERING
**DEPARTMENT OF CIVIL
AND ENVIRONMENTAL ENGINEERING**



ACADEMIC STAFF

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MARINA NEOPHYTOU

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MICHAEL PETROU

Associate Professor

PANAYIOTIS ROUSSIS

Lecturer

DIMITRIOS VAMVATSIKOS

Lecturer

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

In the next pages, you will find a report on the research activities and achievements of the faculty of the Department of Civil and Environmental Engineering for the period 2005-2007. Our Department admitted its first undergraduate students in September 2003 and produced the first graduates in June 2006. We launched the Ph.D. programmes in fall 2004 and the M.Sc. programmes in 2005. Since its creation, the Department has expanded rapidly with the recruiting of new faculty and with the admission of an increasing number of undergraduate and graduate students. The Department has enjoyed considerable success in attracting research funding during this period. Through this development phase, we created the laboratory and information technology infrastructure to support our mission of providing high-quality educational and research programmes to students. We continuously strive to improve and to offer more graduate programmes and to define our research directions.

The Department covers the traditional areas of Civil Engineering such as structures, building materials, earthquake engineering, construction management, geotechnical engineering, transportation and hydraulics. In parallel, we integrated areas concerned with the environment such as management of solid and liquid waste, protection of water resources and air pollution. We strive to integrate aspects of the sustainable building environment as well some issues on environmental health into the academic programmes and research directions. All these areas have a direct impact on health and safety, tourism, the construction industry and the local economy of Cyprus.

In the period covered in this report, we achieved our primary objective to develop a first class curriculum and to provide high-quality educational programmes to students. After building the research infrastructure, one of our next immediate objectives is to develop our postgraduate programmes and offer degrees in the various disciplines of civil and environmental engineering in order to attract the brightest students to pursue their postgraduate studies and to strengthen the research work in the Department.

Panos Papanastasiou
Chairperson

DIMOS CHARMPIS Lecturer
Department of Civil and Environmental Engineering

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■ **STUDIES**

National Technical University of Athens, Greece, Diploma in Civil Engineering, 1994
National Technical University of Athens and Athens University of Economics and Business, Greece, MBA, 1999
National Technical University of Athens, Greece, Ph.D. in Civil Engineering, 2003

■ **PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS**

Technical Chamber of Greece, Greece • Economic Chamber of Greece, Greece • Greek Association for Computational Mechanics (GRACM), Greece • Cyprus Scientific and Technical Chamber (ETEK), Cyprus

■ **RESEARCH INTERESTS**

Numerical Simulation – Finite Element Methods; Probabilistic/Stochastic Mechanics, Reliability Analysis; Structural Design Optimization, Evolutionary Algorithms; Iterative System Solvers, Preconditioning Techniques; Parallel/Distributed Processing, Domain Decomposition

■ **RESEARCH PROGRAMMES (External Funding 2005-2007)**

Robustness of Structures
Cooperating Organizations from 22 European countries
Funding: COST Action, E.U.

PUBLICATIONS

■ **SELECTED JOURNAL PUBLICATIONS**

G.A. Markou, Z.S. Mouroutis, D.C. Charmpis, "...", The ortho-semi-torsional (OST) spring analogy method for 3D mesh moving boundary problems, *Computer Methods in Applied Mechanics and Engineering*, Elsevier, Vol. 196, No. 4-6, 747-765, 2007

H.J. Pradlwarter, et al., Application of line sampling simulation method to reliability benchmark problems, *Structural Safety*, Elsevier, Vol. 29, No. 3, 208-221, 2007

Z.S. Mouroutis, et al., An efficient mesh updating technique for fluid structure interaction problems, *International Journal of Computational Methods*, World Scientific, Vol. 4, No. 2, 249-263, 2007

D.C. Charmpis, G.I. Schuëller, M.F. Pellissetti, The need for linking micromechanics of materials with stochastic finite elements: a challenge for materials science, *Computational Materials Science*, Elsevier, Vol. 41, No. 1, 27-37, 2007

SYMEON E. CHRISTODOULOU Assistant Professor
Department of Civil and Environmental Engineering

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■ **STUDIES**

Columbia University, U.S.A., B.Sc. in Civil Engineering, 1991
Columbia University, U.S.A., M.Sc. in Civil Engineering, 1992
Columbia University, U.S.A., M.Phil., 1996
Columbia University, U.S.A., Ph.D., 1998

■ **PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS**

American Society of Civil Engineers (ASCE), U.S.A. (Associate Member)
• Construction Research Council (CRC), U.S.A. • Center for Construction Management Technology (CCMT), U.S.A • Cyprus Scientific and Technical Chamber (ETEK), Cyprus

■ **EDITORIAL BOARDS**

Artificial Intelligence in Civil Engineering, Italy, Civil-COMP Press
Artificial Intelligence in Civil Engineering, Malta, Civil-COMP Press

■ **RESEARCH INTERESTS**

Fully Integrated and Automated Project Processes; Artificial Intelligence in Civil Engineering; Information Technology in Civil Engineering; Water Distribution Management Systems; Construction Management and Risk Analysis

■ **RESEARCH PROGRAMMES (External Funding 2005-2007)**

Detection and Management of Water Leaks in Urban Environments Using Wireless Sensor Networks
Cooperating Organizations: SignalGenerix, Cyprus; Nicolaidis and Associates, Cyprus. Funding: RPF, Cyprus
Sustainable Building Development and Construction Management through Virtual Reality Workspaces and Simulation
Funding: RPF, Cyprus
Integrated System for Risk Assessment and Management of Urban Water Distribution Systems
Cooperating Organizations: Water Board of Limassol; Water Board of Larnaca, Cyprus. Funding: RPF, Cyprus

PUBLICATIONS

■ **SELECTED CONFERENCE PROCEEDINGS**

Christodoulou, S., Charalambous, B. and Adamou, A., Managing the 'Repair or Replace' Dilemma on Water Leakages, *Proceedings, International Water Association's (IWA) Third Specialty Conference on Water Loss Reduction (Water Loss 2007)*, Bucharest, Romania, 2007, www.waterloss2007.com

Christodoulou, S., Resource-constrained scheduling using Ant Colony Optimization, *Proceedings, Ninth International Conference on the Application of Artificial Intelligence to Civil, Structural and Environmental Engineering*, St. Julians, Malta, 2007
www.civil-comp.com/conf/ai07.htm

Christodoulou, S., Charalambous, B., and Adamou, A., Managing the "Replace or Repair" Dilemma on Water Leakages in Urban Water Distribution Networks, *Proceedings, International Water Resources Association Conference on Water Resources Management – New Approaches and Technologies (EWRA)*, Chania, Crete, 2007
www.waterloss2007.com

Christodoulou, S., Aslani, P. and Deligianni, A., Integrated Water Distribution Network Risk Assessment and Management, *Proceedings, ASCE's Tenth East Asia-Pacific Conference on Structural Engineering and Construction, EASEC-10*, Bangkok, Thailand, 2006, www.easec10.net

Christodoulou, S., Aslani, P. and Deligianni, A., Integrated GIS-Based Management of Water Distribution Networks, *Proceedings, 2006 ASCE joint International Conference on Computing and Decision-Making in Civil and Building Engineering*, Montreal, Canada, 2006, www.asce.org

Aslani, P. and Christodoulou, S., Integrated Dynamic Resource Modeling and Graph Theory, *Proceedings, 2006 ASCE's Joint International Conference on Computing and Decision-Making in Civil and Building Engineering*, Montreal, Canada, 2006
www.asce.org

Christodoulou, S., Scheduling with Artificial Agents and the Ant Colony Optimization, *Proceedings, 21st Conference of the Association of Researchers in Construction, ARCOM* London, U.K., 2005, www.arcom.ac.uk

Christodoulou, S., Scheduling Construction Activities Using Ant Colony Optimization, *Proceedings, Eighth International Conference on the Application of Artificial Intelligence to Civil, Structural and Environmental Engineering*, Rome, Italy, 2005
www.civil-com/conflaios.htm

Christodoulou, S., Ant Colony Optimization in Construction Scheduling, *Proceedings, 2005 ASCE International Conference on Computing in Civil Engineering*, Cancun, Mexico, 2005, cedb.asce.org/cgi/wwwdisplay.gi?0523168

Christodoulou, S., Optimal Truss Design Using Ant Colony Optimization, *Proceedings, Fifth GRACM International Congress on Computational Mechanics*, Limassol, Cyprus, 2005, www.ucy.ac.cy/orgracm05/PROCS1/10.pdf

IOANNIS IOANNOU Lecturer
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■ STUDIES

University of Manchester, Institute of Science and Technology (UMIST), U.K., B.Sc. in Construction Management, 1999

University of Manchester, Institute of Science and Technology (UMIST), U.K., Ph.D. in Building Engineering, 2002

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

International Union of Laboratories and Experts in Construction Materials, Systems and Structures (RILEM), (Affiliate Member) • Chartered Institute of Building, U.K. (Incorporated Member)

■ RESEARCH INTERESTS

Characterization of Construction Materials; Capillary Liquid Transport Phenomena; Building Stone Decay; Repair and Conservation of Monuments; Salt Crystallization

■ RESEARCH PROGRAMMES (University of Cyprus 2005-2007)

Analytical and Experimental Investigation of Concrete Flow

■ RESEARCH PROGRAMMES (External Funding 2005-2007)

Hydraulic lime mortar mix design based on the traditional production technology of ancient mortars

Cooperating Organizations: Department of Town Planning and Housing, Cyprus; National Centre for Scientific Research "Demokritos", Greece; Anadomi Co. Ltd, Cyprus; Peletico Co. Ltd, Cyprus
Funding: RPF, Cyprus

Sustainable construction in public and private works through IPP approach

Cooperating Organizations: National Technical University of Athens (Project Coordinator), Greece; Edrasis C. Psallidas S.A., Greece; Cybarco Ltd, Cyprus; EPTA, Greece; Cyprus Scientific and Technical Chamber (ETEK), Cyprus. Funding: E.U.

A study of the weathering of aggregate materials aiming at the improvement of the durability of concrete

Cooperating Organizations: Federation of the Building Contractors Association, Cyprus; Department of Geological Survey, Cyprus; Department of Public Works, Cyprus; KAOS Co. Ltd, Cyprus; Mosphiloti Quarries Ltd, Cyprus. Funding: RPF, Cyprus

PUBLICATIONS

■ SELECTED JOURNAL PUBLICATIONS

Ioannou, I., et al., Synchrotron radiation energy-dispersive X-ray diffraction analysis of salt distribution in limestone, *The Analyst*, 130, 1006-1008, 2005

■ SELECTED CONFERENCE PROCEEDINGS

Ioannou, I., et al., Reproduction of hydraulic lime mortars based on the traditional production technology of ancient mortars from Cyprus, *1st Euro-Mediterranean Regional Conference: Traditional Mediterranean Architecture. Present and Future*, Barcelona, Spain, 546-549, 2007

Tziogas, P., Kaimakakis, G., Ioannou, I., "...", Mechanical properties of hydrated calcium alumino-silicate fly-ash products, *XXIII Pan-Hellenic Conference on Solid State Physics and Materials Science*, Athens, Greece, 226-227, 2007 (in Greek)

Wilson, M.A., Carter, M.A., Ioannou, I., "...", A study of the water retentivity of cement, natural hydraulic lime and hydrated lime mortars in the freshly-mixed state, *Advanced Testing of Fresh Cementitious Materials*, Stuttgart, Germany, 253-259, 2006

Philokyprou, M., Ioannou, I., Hadjichristos, C., "...", Hydraulic lime mortar mix design based on the production technology of ancient mortars from Cyprus, *2nd International Conference on Ancient Greek Technology*, Athens, Greece, 158-164, 2005 (in Greek)

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■ STUDIES

National Technical University of Athens, Greece, Diploma in Chemical Engineering, 1993

European Association for Environmental Management and Education (E.A.E.M.E.), Greece (University of Athens), Italy (Joint Research Center, Ispra), M.Sc., 1995

National Technical University of Athens, Greece, Ph.D. in Chemical Engineering, 1999

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

International Water Association (IWA), U.K. • International Solid Waste Association (ISWA), Denmark • Hellenic Chemical Engineering Association, Greece • Technical Chamber of Greece, Greece (TEE) • Cyprus Scientific and Technical Chamber (ETEK), Cyprus • Greek Association of Women Engineers, Greece • Society of Environmental Toxicology and Chemistry (SETAC), Belgium

■ EDITORIAL BOARDS

Open Environmental and Biological Monitoring, Bentham Science Publishers Ltd

■ RESEARCH INTERESTS

Chemical Analysis of Xenobiotics in the Urban Water Cycle; Toxicity and Eestrogenicity Assessment of Environmental Contaminants; Advanced Chemical Oxidation for the Removal of Micro-Pollutants; Hybrid Systems for Water/Wastewater Treatment Optimization; Solid Waste Management and Environmental Management Systems

■ **RESEARCH PROGRAMMES (University of Cyprus 2005-2007)**

Thermoelectric Nanosensor Networks ThermoNanoNetsy), Task 3:
Development of Chemicals and Nutrients Sensors (Co-Investigator)

■ **RESEARCH PROGRAMMES (External Funding 2005-2007)**

Development and application of innovative advanced oxidation processes for the removal of active organic compounds in urban wastewaters and monitoring of toxicity (Principal Investigator)

Cooperating Organizations: University of Salerno, Italy; University of Aegean, Greece. Funding: RPF, Cyprus

Development of research for decomposing toxic organic substances by advanced chemical oxidation methods (DIATOXH), (Principal Investigator)

Funding: RPF, Cyprus

The implementation of 76/464/EEC and 80/68/EEC directives related to the industrial emissions of dangerous substances in water bodies in Cyprus (Principal Investigator)

Cooperating Organizations: ISOTECH Ltd, Cyprus; Proplan Ltd, Cyprus.

Funding: Ministry of Agriculture, Natural Resources and Environment, Cyprus

Xenobiotics in the urban water cycle (Management Committee Member)
Cooperation with 31 states. Funding: COST Action 636, E.U.

Application of the integrated pollution prevention and control legislation in pig farms (Principal Investigator)

Funding: Ministry of Agriculture, Natural Resources and Environment, Cyprus

Nitrogen in Europe, Assessment of current problems and future solutions (Scientific Committee Member)

Cooperation with 11 European research centres/institutes.

Funding: ESF, E.U.

Development of methods and tools for the establishment of good environmental performance in the tourist accommodation sector - Implementation of pilot studies (Principal Investigator for University of Cyprus)

Cooperating Organizations: The Hashemite University, Jordan (Coordinator); Ministry of Environment, Jordan; Ministry of Tourism, Jordan; Movenpick Hotel, Jordan; Jordan University of Science and Technology, Jordan; Aeoliki Ltd, Cyprus

Funding: E.U. Life Third Countries

Sustainable construction of private and public works (Principal Investigator for University of Cyprus)

Cooperating Organizations: National Technical University of Athens, Greece (Coordinator); Edrasis – C. Psallidas S.A, Greece; EPTA Ltd, Greece; Cybarco Ltd, Cyprus; Cyprus Scientific and Technical Chamber (ETEK), Cyprus. Funding: E.U. Life Environment

Life cycle assessment as a decision support tool for the eco-production of olive oil

Cooperating Organizations: Technical University of Crete (Coordinator), Greece; Fundación LEIA C.D.T, Spain; Municipality of Voukolies, Greece. Funding: E.U. Life Environment

PUBLICATIONS

■ SELECTED JOURNAL PUBLICATIONS

D. Fatta, et al., Minimization of the disperse pollution caused by dairy farms in Cyprus through the development of guidelines for their sustainable operation, *Water Science and Technology*, 56, 1, 80-97, 2007

D. Fatta, et al., Analytical methods for tracing pharmaceutical drug residues in water and wastewater, *Trends in Analytical Chemistry*, 26, 6, 515-533, 2007

A.E. Papadopoulos, D. Fatta, M. Loizidou, Development and optimization of Dark Fenton Oxidation for the treatment of textile wastewaters with high organic load, *Journal of Hazardous Materials*, 146, 558-563, 2007

D. Fatta, et al., Organochlorine and organophosphoric insecticides, herbicides and heavy metals residue in industrial wastewaters in Cyprus, *Journal of Hazardous Materials*, 145, 169-179, 2007

D. Fatta, et al., Pesticides, volatile and semivolatle compounds in the surface waters of Cyprus, *Desalination*, 215, 223-236, 2007

A. Nikolaou, S. Meric, D. Fatta, Occurrence patterns of pharmaceuticals in environmental matrices, *Analytical and Bioanalytical Chemistry*, 387, 1225-1234, 2007

V. Belgiorno, L. Rizzo, D. Fatta, "...", Review on endocrine disrupting-emerging compounds in urban wastewater: Occurrence and removal by photocatalysis and ultrasonic irradiation for reuse, *Desalination*, 215, 166-176, 2007

D. Hidalgo, et al., Development of a multi-function software decision support tool for the promotion of the safe reuse of treated urban wastewater, *Desalination*, 215, 90-103, 2007

D. Fatta and S. Anayiotou, MEDAWARE Project for wastewater reuse in the Mediterranean countries: An innovative compact biological wastewater treatment system for promoting wastewater reclamation in Cyprus, *Desalination*, 211, 34-47, 2007

S. Ma, S. Kassinos, D. Fatta, Assessing the accuracy of wall concentration estimation based on averaged permeate velocity in spacer-filled RO membrane systems, *Industrial and Engineering Chemistry Research*, 45, 8134-8144, 2006

PETROS I. KOMODROMOS Lecturer
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■ **STUDIES**

University of Patras, Greece, Diploma of Civil Engineer, 1992
Massachusetts Institute of Technology (MIT), U.S.A., Master of Science in Civil and Environmental Engineering, 1995
Massachusetts Institute of Technology (MIT), U.S.A., Ph.D. in Information Technology, 2001

■ **PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS**

Anti-Seismic Systems International Society (ASSISi) • Cyprus Scientific and Technical Chamber (ETEK), Cyprus • Cyprus Computer Society • Cyprus Association of Civil Engineers • Sigma Xi, The Scientific Research Society, U.S.A. • Earthquake Engineering Research Institute, U.S.A. • American Society of Civil Engineers, U.S.A. (Associate Member)

■ **RESEARCH INTERESTS**

Earthquake Resistant Design and Analysis; Seismic Isolation; Computer-Aided Civil and Environmental Engineering; Information Technology in Civil and Environmental Engineering; Structural Dynamics

■ **RESEARCH PROGRAMMES (University of Cyprus 2005-2007)**

Investigation of the response and behaviour of ancient columns and colonnades during strong earthquake excitations using the discrete element method

■ **RESEARCH PROGRAMMES (External Funding 2005-2007)**

Earthquake-Induced Poundings of Seismically Isolated Structures
Funding: Marie Curie Programme, European Commission

PUBLICATIONS

■ **BOOKS**

Authorship

P. Komodromos, *Structural Analysis: Modern Computer-Aided Methods*, Nicosia, Cyprus, 2006 (in Greek)

■ **SELECTED JOURNAL PUBLICATIONS**

P. Komodromos, et al., Response of Seismically Isolated Buildings Considering Poundings, *Earthquake Engineering and Structural Dynamics Journal*, Vol. 36, 1605-1622, 2007

P. Komodromos, A simplified updated Lagrangian approach for combining discrete and finite element methods, *Computational Mechanics*, Vol. 35, No. 4, 305-313, 2005

■ SELECTED CONFERENCE PROCEEDINGS

P. Komodromos, et al., Modern Object-Oriented Design of Structural Engineering Software, *Proceedings of the Eleventh International Conference on Civil, Structural and Environmental Engineering Computing*, Paper 56, St. Julians, Malta, 2007

www.civil-comp.com/conf/cc07.html

L. Papaloizou, P. Polycarpou and P. Komodromos, Investigation of the response of ancient columns under seismic excitations, *Proceedings of the 8th HSTAM International Congress on Mechanics*, Patras, Greece, 2007, www.hstam2007.upatras.gr

L. Papaloizou, P. Polycarpou and P. Komodromos, Ancient columns and collonades under harmonic and earthquake excitations, Papadrakakis, M., et al. (Eds), *Proceedings of the Computational Methods in Structural Dynamics and Earthquake Engineering, COMPDYN 2007*, Rethymno, Crete, Greece, 2007

<http://194.42.10.251/compdyn2007/index.html>

P. Polycarpou, et al., Effects of Earthquake Induced Poundings on the Response of Seismically Isolated Buildings, Papadrakakis, M., et al. (Eds), *Proceedings of the Computational Methods in Structural Dynamics and Earthquake Engineering, COMPDYN 2007*, Rethymno, Crete, Greece, 2007

<http://194.42.10.251/compdyn2007/index.html>

P. Polycarpou, L. Papaloizou, P. Komodromos, "...", Modeling of Structural Impact of Seismically Isolated Buildings, *Proceedings of the Sixth International Conference on Earthquake Resistant Engineering Structures (ERES 2007)*, Bologna, Italy, 2007

www.wessex.ac.uk/07-conferences/eres-2007.html

P. Komodromos and M.C. Phocas, Application, Research and Development of Seismic Structural Control in Cyprus, *Proceedings of the 10th World Conference on Seismic Isolation, Energy Dissipation and Active Vibrations Control of Structures*, Anti-Seismic Systems International Society, Istanbul, Turkey, 2007, www.did-tasi.org

P. Komodromos, Poundings of seismically isolated buildings during strong earthquakes, Structures Under Shock and Impact IX, N. Jones and C. A. Brebbia (Eds), *The Built Environment*, New Forest, U.K., Vol. 87, 557-568, 2006

P. Komodromos, On the effectiveness of seismic isolation considering the pounding, *Proceedings of the 100th Anniversary Earthquake Conference*, San Francisco, 2006 www.1906eqconf.org

KONSTANTINOS KOSTARELOS Assistant Professor
Department of Civil and Environmental Engineering

TEL.: 22892214, FAX: 22892295, E-mail: dino@ucy.ac.cy

■ STUDIES

Stevens Institute of Technology, U.S.A., Bachelor of Engineering in Civil Engineering, 1987

Stevens Institute of Technology, U.S.A., Master of Engineering in Environmental Engineering, 1993

The University of Texas at Austin, U.S.A., Ph.D. in Civil Engineering, 1998

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

European Geophysical Union (EGU), Europe • Society of Petroleum Engineers (SPE), U.S.A., Europe • American Society of Civil Engineers (ASCE), U.S.A. • Tau Beta Pi, U.S.A.

■ RESEARCH INTERESTS

Remediation of Contaminated Soil and Groundwater; NAPL Flow within Fractured Media; Sensors for In-Situ Site Monitoring; Toxicological Effects of Heavy Metals; Fluid Flow in Porous Media

■ RESEARCH PROGRAMMES (External Funding 2005-2007)

Functional Optical Probes for In-Situ Monitoring for the Geo-Environment (Co-Principal Investigator)

Funding: National Science Foundation, U.S.A.

SEAR Feasibility for Fuel contaminated soils (Co-Principal Investigator)

Funding: Ssang Hwi Oil Co, Korea

Sear Feasibility for Diesel and gasoline contaminated soil (Co-Principal Investigator)

Funding: S-Oil Co, Korea

Stormwater Management Practices Study (Principal Investigator)

Funding: New York State Department of Transportation, U.S.A.

PUBLICATIONS

■ BOOKS

Authorship

Interstate Technology and Regulatory Council (ITRC), *Bio-DNAPL subgroup - Overview of In Situ Bioremediation of Chlorinated Ethene DNAPL Source Zones*, The Interstate Technology and Regulatory Council, 2005

Interstate Technology and Regulatory Council (ITRC), DNAPL subgroup, *Strategies for Monitoring the Performance of DNAPL Source Zone Remedies*, The Interstate Technology and Regulatory Council, 2005

■ SELECTED JOURNAL PUBLICATIONS

Jittawattanarat Rungrod, Konstantinos Kostarelos and Eakalak Khan, Immobilized Cell Augmented Activated Sludge Process for Enhanced Nitrogen Removal from Wastewater, *Water Env. Research*, Water Environment, 79(11); 2325-35, 2007

Jittawattanarat Rungrod, Konstantinos Kostarelos and Eakalak Khan, Immobilized Cell Augmented Activated Sludge Process for Treating Wastewater Containing Hazardous Compounds, *Water Env. Research*, Water Environment, 79(5), 461-471, 2007

Ringenary, Mark J., et al., Long-Term Sediment Bioassay of Lead (Pb) Toxicity in Two Generations of the Marine Amphipod *Elasmopus laevis*, *Environmental Toxicology and Chemistry*, SETAC, 26(8), 1700-1710, 2007

Jin, Minquan, et al., Control of Gravity Migration of DNAPL in Surfactant Flooding Through Viscous Forces, *Water Resources Research*, AGU, 43(1)W01412, 2007

Kostarelos, Konstantinos, et al., Optimum Dose of Lime And Fly Ash for Treatment of Hexavalent Chromium–Contaminated Soil, *Jr. Water, Air, and Soil Pollution* 6, Kluwer 171-189, 2006

■ SELECTED CONFERENCE PROCEEDINGS

Konstantinos Kostarelos and Mark J. Ringenary, Long-term sediment bioassay of lead (Pb) toxicity in two generations of the marine amphipod 'elasmopus laevis', *European Geo Sciences General Assembly 2007*, 2007

<http://www.cosis.net/abstracts/EGU2007/11305/EGU2007-J-11305.pdf>

Jittawattarat Rungrid, Konstantinos Kostarelos, Eakalak Khan, Enhanced Nitrogen Removal using Immobilized Cell Augmented Activated Sludge Process, *WEF Annual Convention*, 1143 - 1162, 2006

Kostarelos Konstantinos, James Taiwo and James Wade, Flow Behavior in Fractured Media, *Green Brownfields Conference III*, Castello diLerici, 12-19, 2006

Liu, Jinyuan, et al., Flow visualization using transparent synthetic soils, *16th International Conference on Soil Mechanics and Geotechnical Engineering*, Int. Soc. of Soil Mechanics and Geotechnical Eng., Osaka, Japan, 102-106, 2005

MARINA NEOPHYTOU Lecturer
Department of Civil and Environmental Engineering

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■ STUDIES

University of Cambridge, U.K., B.A. in Civil, Structural and Environmental Engineering, 1997

University of Cambridge, U.K., M.Eng in Energy, Fluid Mechanics and Thermodynamics, 1997

University of Cambridge, U.K., M.A., and Ph.D. in Environmental Fluid Mechanics, 2002

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

Association of Environmental Scientists and Engineers, Cyprus

■ RESEARCH INTERESTS

Environmental Fluid Mechanics: Atmospheric Pollution Dispersion; Urban Climatology; Chemically-Reacting Turbulent Flows; Buoyancy-Driven Flows; Building Ventilation and Fire Safety; Sustainable Building Design

■ RESEARCH PROGRAMMES (University of Cyprus 2005-2007)

Environmental Fluid Dynamics and Sustainable Energy Development using Particle Image Velocimetry (Principal Investigator)

■ RESEARCH PROGRAMMES (External Funding 2005-2007)

- Performance Evaluation of Urban Pollution Dispersion Models in the Cypriot Urban Environment through Experimental Field Campaigns (Principal Investigator)
Cooperating Organizations: Ministry of Labour and Social Insurance, Cyprus; Meteorological Service, Cyprus; University of Cambridge, U.K.; ATLANTIS Environmental Consultants Ltd, Cyprus. Funding: RPF, Cyprus
- Joint Cypriot-Romanian Research Studies for E.U. Harmonisation on the Evaluation of Urban Pollution Dispersion Models (Principal Investigator)
Cooperating Organization: National Institute of Aerospace Research "Elie Carafoli", Romania. Funding: RPF, Cyprus
- Dispersion of Air Pollution and Penetration to the Local Environment
Cooperating Organizations: Universities of Cambridge, Surrey, Reading, Bristol, Leeds and Imperial College, U.K.
Funding: Engineering and Physical Sciences Research Council, U.K.

PUBLICATIONS

■ SELECTED JOURNAL PUBLICATIONS

- Neophytou, M.K. and Britter, R.E., Modelling buoyancy-driven flows in semi-enclosed regions: applications to the fire propagation in tunnels, *International Journal of Progress in Computational Fluid Dynamics*, Vol. 6, Nos.1-2, 137-145, 2006
- Neophytou, M.K. and Britter, R.E., A simple model for the movement of fire smoke in a confined tunnel, *Journal of Pure and Applied Geophysics*, Springer-Berghäuser Verlag, Vol.162, No.10, 1941-1954, 2005
- Neophytou, M.K., et al., The development of a scale-adaptive reactive pollutant dispersion model, *Atmospheric Environment*, Elsevier Publishers, Vol. 39, Issue 15, 2787-2794, 2005

■ SELECTED CONFERENCE PROCEEDINGS

- Kakoniti and Neophytou, Determining the contribution of radiative heat transfer in the urban heat island effect using Computational Fluid Dynamics Simulations, *Proceedings of the 6th International Conference on Urban Air Quality*, Sokhi and Neophytou (Eds), Limassol, Cyprus, 317, 2007
- Neophytou, Hamlyn and Britter, Turbulent flow structures in transport and mixing process in complex urban geometries, *Proceedings of the International Symposium of the International Union of Theoretical and Applied Mechanics (IUTAM) on "Computational Physics and New Perspectives in Turbulence"*, Nagoya, Japan, 52-53, 2006
- Neophytou and Britter, A CFD Simulation of the flow and dispersion at neighbourhood scale: the case of central London, *Proceedings of the International Congress on Computational Mechanics*, Georgiou and Papanastasiou (Eds), Limassol, Cyprus, 967-974, 2005, <http://www.ucy.ac.cy/~gracm05/PROCS1/111.pdf>

PANOS PAPANASTASIOU Professor
Department of Civil and Environmental Engineering

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■ **STUDIES**

National Technical University of Athens, Greece, Diploma in Civil Engineering, 1984

University of Minnesota, U.S.A., M.Sc. in Civil Engineering, 1986

University of Minnesota, U.S.A., Ph.D. in Civil Engineering, 1990

■ **PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS**

Society of Petroleum Engineers (SPE) • British Geotechnical Society (BGS, Institution of Civil Engineers) • European Mechanics Society (EUROMECH) • International Society for Rock Mechanics (ISRM) • International Association for Computer Methods and Advances in Geomechanics (IACMAG) • Greek Association for Computational Mechanics (GRACM), Greece • Hellenic Association of Theoretical and Applied Mechanics, Greece • Cyprus Scientific and Technical Chamber (ETEK), Cyprus • Association of Civil Engineers, Cyprus • Engineering and Physical Sciences Research Council (EPSRC) (Peer Review College), U.K. • Research Grants Council (RGC) of Hong Kong (Referees Panel Member) • European Sciences Foundation (ESF), (Reviewer)

■ **EDITORIAL BOARDS**

International Journal of Geomechanics, American Society of Civil Engineers

■ **RESEARCH INTERESTS**

Applied and Computational Mechanics: Micro-Mechanics, Fracture Mechanics, Flow in Porous Media, Finite Element Analysis; Applications in Geotechnical Engineering, Environmental Geomechanics and Petroleum Engineering

■ **RESEARCH PROGRAMMES (University of Cyprus 2005-2007)**

Analytical and Experimental Investigation of Concrete Flow
(Co-Investigator)

■ **RESEARCH PROGRAMMES (External Funding 2005-2007)**

Rock Characterization and Landslide Risk Management in Cyprus

Funding: RPF, Cyprus

Numerical Modelling of the Hydraulic Fracturing Technique with Applications in Ground Remediation

Funding: RPF, Cyprus

PUBLICATIONS

■ BOOKS

Editing

Georgiou, G., Papanastasiou, P. and Papadrakakis, M., *Proceedings of the 5th GRACM International Congress on Computational Mechanics*, Vol. 1, Limassol, Cyprus, 2005

Georgiou, G., Papanastasiou, P. and Papadrakakis, M., *Proceedings of the 5th GRACM International Congress on Computational Mechanics*, Vol. 2, Limassol, Cyprus, 2005

■ CHAPTERS IN BOOKS

Papanastasiou, P., Interpretation of the scale effect in perforation failure, *Bifurcation in Geomaterials*, I., Vardoulakis and G., Exadaktylos (Eds), Springer-Verlag Berlin and Heidelberg GmbH and Co, 53-70, 2007

■ SELECTED JOURNAL PUBLICATIONS

Zervos, A., Vardoulakis, I. and Papanastasiou, P., The influence of non-associativity on localization and failure in some geomechanics problems based on gradient elastoplasticity, *ASCE Int. J. Geomechanics*, 1, 63-74, 2007

Papanastasiou, P. and Atkinson, C., Representation of crack-tip plasticity in pressure-sensitive geomaterials: Large scale yielding, *Int. J. Fracture*, 139, 137-144, 2006

Papanastasiou, P., et al., Stability of a multilateral junction: experimental results and numerical modelling, *J. SPE Drilling and Completion*, 4-11, 2006

Papanastasiou, P., Hydraulic Fracturing: Computational modelling. Geomechanics in Energy Production, *Journal Revue Europeenne de Genie Civil*, 829-848, 2006

■ SELECTED CONFERENCE PROCEEDINGS

Papanastasiou, P., Modelling of the scale effect in perforation failure, *Proceedings of the 8th HSTAM International Congress on Mechanics*, Patras, Greece, 1: 271-278, 2007

Hadjigeorgiou, J., Kyriakou, E., Papanastasiou, P., A road embankment failure near Pentalia in Southwest Cyprus, presented in Intern, *Symposium on Stability of Rock Slopes*, S. African Institute of Mining and Metallurgy, Cape Town, 342-352, 2006

Papanastasiou, P., Hydraulic fracturing in weak rocks, *Proceedings 16th European Conference on Fracture Mechanics, ECF16*, E.E. Gdoutos (Ed.), Alexandroupolis, Greece, 551-552, 2006

Han, G., et al., 3-D Elastoplastic FEM modeling in a reservoir simulator, *SPE Reservoir Symposium*, Houston TX, SPE 91891, 1-11, 2005
<http://www.terralog.com/article/SPE91891.pdf>

Papanastasiou, P. and Zervos, A., Computational geomechanics in the solution of problems in petroleum engineering, *Prediction, Analysis and Design in Geomechanical Applications*, G., Barla and M., Barla (Eds), Vol. 4, Proceedings of the 11th International Conference of IAGMAC, Turin, Italy, 637-646, 2005

Papanastasiou, P., Interpretation of the scale effect in perforation failure based on a fracture mechanics and buckling approach, *7th International Workshop on Bifurcation, Instabilities and Degradations in Geomechanics*, Chania, Greece, 94, 2005

■ **DISTINGUISHED PUBLICATIONS (before 2005)**

Papanastasiou, P. and Vardoulakis, I., Numerical treatment of progressive localization in relation to borehole stability, *Int. J. Num. Anal. Meth. Geomech.*, Vol.16, 389-424, 1992

Papanastasiou, P., The effective fracture toughness in hydraulic fracturing, *Int. J. Fracture*, 96, 127-147, 1999

Zervos, A., Papanastasiou, P. and Vardoulakis, I., A finite element displacement formulation for gradient elastoplasticity, *Int. J. Num. Methods Engng*, 50, 1369-1388, 2001

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■ **STUDIES**

National Technical University of Athens, Greece, Diploma in Civil Engineering, 1987

Case Western Reserve University, U.S.A., M.Sc. in Civil Engineering, 1991

Case Western Reserve University, U.S.A., Ph.D. in Civil Engineering, 1993

■ **PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS**

American Society of Civil Engineers (ASCE), U.S.A. • Precast/Prestressed Concrete Institute (PCI), U.S.A. • American Concrete Institute (ACI), U.S.A. •

American Society for Engineering Education (ASEE), U.S.A. • Technical Chamber of Greece, Greece • Cyprus Scientific and Technical Chamber (ETEK), Cyprus

■ **RESEARCH INTERESTS**

Civil Engineering Materials; Experimental Methods; Behaviour of Reinforced and Prestressed Concrete; Repairs and Strengthening of Structures; High Performance Materials

■ **INTERNAL RESEARCH PROGRAMMES (2005-2007)**

Analytical and Experimental Investigation of Concrete Flow (Principal Investigator)

■ **EXTERNAL RESEARCH PROGRAMMES (2005-2007)**

Study of the Soundness of Aggregate in Order to Improve the Durability of Concrete

Funding: RPF, Cyprus

PUBLICATIONS

■ SELECTED JOURNAL PUBLICATIONS

B.L. Wan, M.F. Petrou and K.A. Harries, The Effect of the Presence of Water on the Durability of Bond Between CFRP and Concrete, *Journal of Reinforced Plastics and Composites*, Vol. 25(8), 875-890, 2006

J.Aidoo, K.A. Harries, and M.F. Petrou, Full-Scale Experimental Investigation of Repair of Reinforced Concrete Interstate Bridge Using CFRP Materials, *ASCE Journal of Bridge Engineering*, Vol. 11, No. 3, 350-358, 2006

W. Baolin, D.C. Rizos, M.F. Petrou, "...", Computer Simulations and Parametric Studies of GFRP Bridge Deck Systems, *Composite Structures*, Vol. 69 (1), 103-115, 2005

K. Coogler, et al., Critical Evaluation of Strain Measurements in GFRP Bridge Decks, *ASCE Journal of Bridge Engineering*, Vol. 10, No. 6, 704-712, 2005

J.B. Quattlebaum, K.A. Harries, and M.F. Petrou, Comparison of Three Flexural Retrofit Systems under Monotonic and Fatigue Loads, *ASCE Journal of Bridge Engineering*, Vol. 10, No. 6, 731-740, 2005

■ DISTINGUISHED PUBLICATIONS (before 2005)

M.F. Petrou, et al., A Unique Experimental Method for Monitoring Aggregate Settlement in Concrete, *Cement and Concrete Research*, Vol. 30, 809-816, 2000

C.G. Papakonstantinou, M.F. Petrou, and K.A. Harries, Fatigue Behavior of Reinforced Concrete Beams Strengthened with GFRP Sheets, *ASCE Journal of Composites for Construction*, Vol. 5, No. 4, 246-253, 2001

M.K. Turner, K.A. Harries, M.F. Petrou, "...", In-situ Structural Evaluation of a GFRP Bridge Deck System, *Composite Structures*, Vol. 65 (2), 157-165, 2004

PANAYIOTIS ROUSSIS Lecturer
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■ STUDIES

National Technical University of Athens, Greece, Diploma in Civil Engineering, 1996

Rice University, Houston, Texas, U.S.A., Master of Science in Civil Engineering, 1999

University at Buffalo, Buffalo, New York, U.S.A., Doctor of Philosophy in Civil Engineering, 2004

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

American Society of Civil Engineers (ASCE), U.S.A. (Associate Member) • Earthquake Engineering Research Institute (EERI), U.S.A. • Cyprus Scientific and Technical Chamber (ETEK), Cyprus

■ RESEARCH INTERESTS

Structural Engineering; Earthquake Engineering and Structural Dynamics; Seismic Isolation and Energy Dissipation Systems; Earthquake-Simulator Dynamic Testing

■ RESEARCH PROGRAMMES (External Funding 2005-2007)

Base-isolation Technology for Earthquake Protection of Cultural Heritage
Funding: Marie Curie Actions, E.U.

PUBLICATIONS

■ SELECTED JOURNAL PUBLICATIONS

Roussis, P. C. and Constantinou, M. C., Uplift-restraining Friction Pendulum seismic isolation system, *Earthquake Engineering and Structural Dynamics*, U.S.A., 577-593, 2006

Roussis, P. C. and Constantinou, M. C., Experimental and analytical studies of structures seismically isolated with an uplift-restraining Friction Pendulum system, *Earthquake Engineering and Structural Dynamics*, U.S.A., 595-611, 2006

■ SELECTED CONFERENCE PROCEEDINGS

Roussis, P. C. and Constantinou, M. C., Seismic response analysis of structures equipped with uplift-restraining sliding isolation bearings: A case study, *Proceedings of the 8th National Conference on Earthquake Engineering*, San Francisco, CA, U.S.A., 1599, 2006

Roussis, P. C., et al., Computer Program for Three-Dimensional Nonlinear Dynamic Analysis of Seismically Isolated Structures, *Proceedings First European Conference on Earthquake Engineering and Seismology*, Geneva, 1110, 2006

<http://www.ecees.org/index2.html>

DIMITRIOS VAMVATSIKOS Lecturer
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■ STUDIES

National Technical University of Athens, Greece, Diploma in Civil Engineering, 1997

Stanford University, U.S.A., M.S. in Civil and Environmental Engineering, Geomechanics, 1998

Stanford University, U.S.A., Ph.D. in Civil and Environmental Engineering, 2002

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

Earthquake Engineering Research Institute, U.S.A. • International Association for Structural Safety and Reliability

■ RESEARCH INTERESTS

Seismic Performance of Steel Structures; Capacity and Reliability of Structures; Stochastic Methods; Nonlinear Static and Dynamic Analysis; Seismic Codes and Guidelines

■ RESEARCH PROGRAMMES (External Funding 2005-2007)

Rehabilitate, Upgrade or Replace? Defining the design life of buildings for sustainable urban development
Cooperating Organization: University of Ljubljana, Slovenia.
Funding: RPF, Cyprus

PUBLICATIONS

■ SELECTED JOURNAL PUBLICATIONS

Fragiadakis, M., Vamvatsikos, D., Papadrakakis, M. Evaluation of the influence of vertical irregularities on the seismic performance of a 9-storey steel frame, *Earthquake Engineering and Structural Dynamics*, 35(12): 1489–1509, 2006

Vamvatsikos, D., Cornell, C.A., Direct estimation of the seismic demand and capacity of oscillators with multi-linear static pushovers through Incremental Dynamic Analysis, *Earthquake Engineering and Structural Dynamics*, 35(9): 1097–1117, 2006

Vamvatsikos, D., Cornell, C.A., Developing efficient scalar and vector intensity measures for IDA capacity estimation by incorporating elastic spectral shape information, *Earthquake Engineering and Structural Dynamics*, 34(13): 1573–1600, 2005

Vamvatsikos, D., Cornell, C.A., Direct estimation of the seismic demand and capacity of MDOF systems through Incremental Dynamic Analysis of an SDOF Approximation, *ASCE Journal of Structural Engineering*, 131(4): 589–599, 2005

■ DISTINGUISHED PUBLICATIONS (before 2005)

Vamvatsikos, D., and Cornell, C.A., Applied Incremental Dynamic Analysis, *Earthquake Spectra*, 20(2): 523–553, 2004

Vamvatsikos, D., Cornell, C.A., Incremental Dynamic Analysis, *Earthquake, Engineering and Structural Dynamics*, 31(3): 491–514, 2002

FACULTY OF ENGINEERING
**DEPARTMENT OF CIVIL AND
ENVIRONMENTAL ENGINEERING**
(Programme of Studies in Architecture)

The central graphic features a large, curved, semi-circular shape on the left side, transitioning from a dark yellow to a light yellow. This shape is overlaid with a faint, multi-colored rainbow-like spectrum. The background is a solid, bright yellow. The entire design is framed by a thin white border at the top and bottom.

ACADEMIC STAFF

CHRISTOS A. HADJICHRISTOS
Assistant Professor

MARIOS C. PHOCAS
Assistant Professor

PANAYIOTA PYLA
Assistant Professor

SOCRATES STRATIS
Lecturer

PROGRAMME OF STUDIES IN ARCHITECTURE

The Programme of Architecture accepted its first undergraduate students in 2005, while in 2008 the postgraduate course of study leading to the Ph.D. in Architecture was offered for the first time. Through the courses of study and research activities, the programme of Architecture aims at the creation of an identity for its students, researchers and graduates, along the lines supported by the practice and research in Architecture internationally, especially in the wider European Union. The research activities concentrate on the following main areas of architectural theory, technology and design: Architectural Theory and History, Architectural Communication Media, Architectural Technology and Urban Design.

The research activities of the faculty and the postgraduate course of study (Ph.D. in Architecture) aim at an interdisciplinary approach that transfers new knowledge and innovation to the wider area of Architecture. The research interests of the faculty cover thematic topics, such as: Space Syntax, Architectural Analysis and Practice, the Social Dimension of Architecture, Epistemology and Architecture, Environmental Theories in Architecture, Technology and Intelligent Architecture, Construction Systems and Materials, Advanced Structural Concepts, Steel Buildings, Earthquake Resistant Buildings and Traditional and Modern Architecture. In all cases, design-based research is of substantial importance within the Programme of Architecture. Such research is further enhanced by the contributions of the faculty in architectural competitions and the provision of consultancies within the practice of the discipline. The research infrastructure of the Programme is supported by the interdisciplinary Archimedes Research Centre for Structural and Construction Technology and the lab for Digital Architecture. Such a support will be further strengthened by the labs, for Prototype Systems Development and Mediterranean Architecture Net, currently under development.

Marios C. Phocas
Interim Chairperson

CHRISTOS A. HADJICHRISTOS Assistant Professor Programme of Studies in Architecture

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■ STUDIES

University of Texas at Austin, U.S.A., B.Sc. in Architectural Engineering, 1986
University of Texas at Austin, U.S.A., Master of Architecture, 1991
Bartlett School of Graduate Studies, University College London, U.K., Ph.D.
in Architecture, 2002

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

Cyprus Scientific and Technical Chamber (E TEK), Cyprus • Cyprus Civil
Engineers and Architects Association (CCEAA), Cyprus • Cyprus Architects
Association (CAA), Cyprus

■ RESEARCH INTERESTS

Space and Social Phenomena; Architectural Knowledge and Skill,
Epistemology; The Architectural Profession; Materials and Construction
Systems; Syntax, Semantics and Human Perception; Layering in Perception
and as a Conceptual Lens; Research by Architectural Design and Painting

■ RESEARCH PROGRAMMES (External Funding 2005-2007)

Hydraulic lime mortar mix design based on the traditional production
technology of ancient mortars
Cooperating Organizations: Department of Town Planning and
Housing, Cyprus; National Centre for Scientific Research "Demokritos",
Greece; ANADOMI Co. Ltd, Cyprus; PELETICO Co. Ltd, Cyprus
Funding: RPF, Cyprus

PUBLICATIONS

■ CHAPTERS IN BOOKS

C. Hadjichristos, Layered, *Thinking the City*, Haris Bellabaishiotis and David Officer
(Eds), EU Project, Mediterranean Voices, 12-14, 2006

■ SELECTED JOURNAL PUBLICATIONS

C. Hadjichristos, Cyprus: Nicosia and its d-Visions, AD (Architectural Design), *The New
Europe*, Valentina Croci (Ed.), Wiley-Academy, London, Vol. 76, No. 3, 12-19, 2006

C. Hadjichristos, 'Why the architect's house has one living room and the client's house
has two kitchens, *Dealing with Tradition, Traditional Dwellings and Settlements*, Nezar
AlSayyad (Ed.), University of California Berkeley, U.S.A., Vol. 176, 40-48, 2004-2005

■ SELECTED CONFERENCE PROCEEDINGS

C. Hadjichristos, *Prostitution Spatialized*, 6th International Space Syntax Symposium, Ayse Sema Kubat (Ed.), ITU Faculty of Architecture, Istanbul, Turkey, Proceedings Vol. 2, 113.1-113.6, 2007

C. Hadjichristos, *Nicosia: Its Space and its d-Visions*, 5th International Space Syntax Symposium, Akkelies van Nes (Ed.), TU Delft, Faculty of Architecture, The Netherlands, Proceedings Vol. 1, 395-402, 2005

MARIOS C. PHOCAS Assistant Professor Programme of Studies in Architecture

TEL.: 22892969, FAX: 22660834, E-mail: mcphocas@ucy.ac.cy

■ STUDIES

University of Stuttgart, F.R. Germany, Vordiplom, 1991

University of Stuttgart, F.R. Germany, Dipl.-Ing., 1995

University of Stuttgart, F.R. Germany, Dr.-Ing., 1999

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

Council on Tall Buildings and Urban Habitat (CTBUH), U.S.A. • Earthquake Engineering Research Institute (EERI), U.S.A. • Anti-Seismic Systems International Society (ASSISi), Italy • German Society of Earthquake Engineering and Structural Dynamics (DGEB), F.R. Germany • Association of German Engineers (VDI), Building Engineering Division, F.R. Germany • Cyprus Scientific and Technical Chamber (ETEK), Architecture Division, Cyprus • Cyprus Civil Engineers and Architects Association (CCEAA), Cyprus • Cyprus Architects Association (CAA), Cyprus

■ RESEARCH INTERESTS

Integrated Architectural Design; Building Structures and Construction; Earthquake Resistant Structural Building Design;

PUBLICATIONS

■ BOOKS

Authorship

Phocas, M.C., *High-Rise Buildings. Structure and Construction*, Teubner, Wiesbaden, 2005 (in German)

■ SELECTED JOURNAL PUBLICATIONS

Pocanschi, A., Phocas, M.C., *Adaptable Earthquake Isolator with Progressive Nonlinear Deformability*, *Engineering Structures*, Elsevier Science, Vol. 29, No. 10, 2586-2592, 2007

Komodromos, P., et al., Response of Seismically Isolated Buildings Considering Pounding. *Earthquake Engineering and Structural Dynamics*, John Wiley and Sons, Vol. 36, No. 12, 1605-1622, 2007

Phocas, M.C., Steel Buildings. Construction Design. Architects and Civil Engineers, Cyprus Civil Engineers and Architects Association, *Response Publications*, Nicosia, No. 75, 49-52, 2007 (in Greek)

Pocanschi, A., Phocas, M.C., Load Bearing Glass Columns for a Coffee-house in Goeppingen. *Building Engineering*, Ernst and Son, Vol. 83, No. 10, 708-714, 2006 (in German)

Phocas, M.C., Pocanschi, A., Adaptable Earthquake Bearings for Compact Buildings. *European Earthquake Engineering*, Pàtron Editore, Vol. XIX, No. 2, 40-50, 2005

■ SELECTED CONFERENCE PROCEEDINGS

Polycarpou, P., et al., Modeling of the Structural Impact of Seismically Isolated Buildings, Brebbia, C.A. (Ed.), *Earthquake Resistant Engineering Structures VI*, Section 3: Seismic Isolation, WIT Press, Southampton, 129-138, 2007

Phocas, M.C., Teaching Construction. The Integrated Design Approach Method. Voyatzaki, M. (Ed.), Accommodating new Aspects of Interdisciplinarity in Contemporary Construction Teaching, Fourth Theme: Morphogenesis, EAAE-ENHSA Construction Teachers Sub-network Workshop, EAAE-ENHSA, University IUAV, Venice, Italy, *EAAE Transactions on Architectural Education* No. 34, 425-432, 2006

Phocas, M.C., John Argyris and his decisive Contribution in the Development of Light-Weight Structures. Form follows Force, Georgiou, G., Papanastasiou, P., Papadrakakis, M. (Eds), *5th GRACM International Congress on Computational Mechanics*, GRACM 05, Proceedings Vol. 1, Kantzilaris Publications, Nicosia, Cyprus, 97-103, 2005

Phocas, M.C., Pocanschi, A., Towards an Industrialisation and Standardisation of Earthquake Isolators. A Case Study. Brebbia, C.A., et al. (Eds), *Earthquake Resistant Engineering Structures V, Series: Advances in Earthquake Engineering*, Vol. 15, Section 9: Passive Protection Devices and Seismic Isolation, WIT Press, Southampton, 685-695, 2005

■ DISTINGUISHED PUBLICATIONS (before 2005)

Authorship

Phocas, M.C., Pocanschi, A., *Adaptable Earthquake Isolators for Areas of Moderate Seismicity*, Knippers, J. (Ed.), Institute of Structural Systems and Structural Building Design, Research Report 25, University of Stuttgart, Stuttgart, 2004 (in German)

Pocanschi, A., Phocas, M.C., *Forces in Motion. The Technologies of Earthquake Resistant Structural Building Design*, Teubner, Wiesbaden, 2003 (in German)

Phocas, M.C., Pocanschi, A., *Steel Frames with Bracing Mechanism and Hysteretic Dampers*. *Earthquake Engineering and Structural Dynamics*, John Wiley and Sons, Vol. 32, No. 5, 811-825, 2003

PANAYIOTA PYLA Assistant Professor Programme of Studies in Architecture

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■ STUDIES

Rensselaer Polytechnic Institute, Troy, NY, U.S.A., Bachelor in Science in Building Science, 1991

Rensselaer Polytechnic Institute, Troy, NY, U.S.A., Bachelor in Architecture, 1991

Massachusetts Institute of Technology, Cambridge, U.S.A., Master of Science in Architectural Studies, 1994

Massachusetts Institute of Technology, Cambridge, U.S.A., Doctor of Philosophy in Architecture: History and Theory of Architecture, 2002

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

Association of Collegiate Schools of Architecture (ACSA), U.S.A. and Canada • Society of Architectural Historians (SAH) • European Architectural History Network (EAHN) • Archnet, U.S.A.

■ EDITORIAL BOARDS

Electronic Journal of Middle East Studies (MIT-EJMES), International *European Architectural History Network Newsletter*, Correspondent International

Journal of Planning History (Peer Reviewer), U.S.A., Sage Publications

Planning Perspectives (Peer Reviewer), U.S.A. and Europe, Routledge

Association of Collegiate Schools of Architecture Conference Proceedings (Peer Reviewer), U.S.A., ACSA

■ RESEARCH INTERESTS

Architecture and Environmental/Social Sustainability; Architectural Pedagogy and Environmental Politics; Theory-History of Modern Architecture-Urbanism; Modern Architecture in the Eastern Mediterranean; Architectural Theory and Postcolonial Theory

■ RESEARCH PROGRAMMES (External Funding 2005-2007)

Landscapes of Development

Funding: Aga Khan Program of Landscape Architecture and Urbanism in Muslim Societies, Harvard Design School, Cambridge, MA, U.S.A.

Architecture, Environment, and Postcolonial Modernization

Funding: University of Illinois Research Board, Illinois, U.S.A.

PUBLICATIONS

■ SELECTED JOURNAL PUBLICATIONS

Panayiota Pyla, Hassan Fathy Revisited, *Journal of Architectural Education*, 28-39, 2007

Panayiota Pyla, Rebuilding Iraq, 1955-58: Modernist Housing, National Aspirations, and Global Ambitions, *DoCoMoMo* 35, France, International, 71-77, 2006

SOCRATES STRATIS Lecturer Programme of Studies in Architecture

TEL.: 22892962, FAX: 22660834, E-mail: stratiss@ucy.ac.cy

■ STUDIES

Cornell University, U.S.A., Bachelor in Architecture, 1989
Cornell University, U.S.A., Master in Architecture, 1990
University of Paris XII, France, DEA in Urbanism, 1998
University of Paris 8 (St Denis), France, Doctorate Degree in Urban Studies-Planification-Planning (option architecture), 2005

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

Office of Qualification of Planners in France (Registered Planner) • Cyprus Scientific and Technical Chamber (ETEK) (Registered Planner and Registered Architect) • Scientific Council of European Europe • European Cyprus (General Secretary)

■ RESEARCH INTERESTS

Political Issues of Spatial Practice; Publicness in Urban Design; Cultural Landscapes; Urbanity in Territorial Cities; Hybrid Spatial Practices - Architecture of Conditions

PUBLICATIONS

■ CHAPTERS IN BOOKS

Socrates Stratis, "Local-translocal- project for the redevelopment of the old port of Limassol"; "Managing complexity- redevelopment of the historical centre of Agia Phyla, Limassol, Cyprus"; "Between public and private - Creation of Europe Park, Nicosia"; "Reprogramming public space - Redevelopment of Eleftheria Square, Nicosia", Didier Rebois (Ed.), *European Generation, The reinterpreted city*, European 4, Heraklion, Crete, La Cité de L'Architecture et du Patrimoine, Paris France, 76-83, 2007

Socrates Stratis, The role of the empty: projects on open spaces - Reprogramming urban voids through a project based logic action in architecture, *RehabiMed Method: Traditional Mediterranean Architecture- i. Rehabilitation Town and Territory*, Barcelona, Spain, 333-338, 2007

Socrates Stratis, The CALL # 192 project, *European Urbanity (European Austria, European Slovenia)*, Vlay Bernd (Ed.), Springer, Vienna, New York, 52-61, 2006

Socrates Stratis, Redevelopment of the waterfront of the old city of Heraklion Crete, Greece, Didier Rebois (Ed.), *European 1 to 6 Negotiated Projects*, European Europe, Paris France, 78-79, 2006

Socrates Stratis, The Cyprus Case, Bartolomeo Pietromarchi (Ed.), *The (un)common place – art, public space and urban aesthetics in Europe*, Milano, Italy, 168-173, 2005

■ SELECTED JOURNAL PUBLICATIONS

Socrates Stratis, Architecture in Cyprus seen through the relations between public and private domains, *Architectonika Themata*, Athens, Greece, 58-129, 2007 (in Greek with english translation and summary)

Socrates Stratis, Urbanising with Infrastructures -crossing networks / creating new polarities in relation to networks, *Europian 8, Catalogue of European Results*, Paris, France, 90-93, 2006

Socrates Stratis, Generating the new – Agii Anargiri, Larnaca, Cyprus, *Europian 8*, Oslo, Norway, 97, 2006

Socrates Stratis, Maria Loizidou, The Public Private Synergy Convoy project, Domes, *Architectural Review*, 94-97, 2006 (in Greek with english translation)


Socrates Stratis, "A residence in Anthoupolis, Nicosia", "A kiosk in a park in Athienou", "Coop square in Athienou", "A kiosk in a park in Lakatamia", "2nd prize award proposal for the redevelopment of the old port, Limassol", *Themata Chorou kai Tehnon*, Athens, Greece, 22-37, 2006 (in Greek with english summary)

■ SELECTED CONFERENCE PROCEEDINGS

Socrates Stratis, Managing Complexity in Architectural Design, Teaching and experimenting in Architectural Design: Advances in Technology and Changes in Pedagogy, *ENHSA – EAAE, Architectural Design Teachers Network Forum*, Lisbon, Portugal, 2007

http://www.lis.ulusiada.pt/eventos/conferencias/architectural_design_teachers/program.pdf

FACULTY OF ENGINEERING
**DEPARTMENT OF ELECTRICAL AND
COMPUTER ENGINEERING**



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Professor

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STAVROS TOUMPIS
Lecturer

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

Electrical and computer engineers are creating and shaping technologies in many diverse areas, ranging from communications, networks, and computing systems to biomedical devices, power systems and embedded systems. Naturally, the Department of Electrical and Computer Engineering at the University of Cyprus finds itself at the heart of numerous technological innovations that are constantly shaping and improving our way of life.

The Department offers undergraduate and postgraduate programmes of study leading to B.Sc., M.Sc. and Ph.D. degrees in Electrical Engineering and in Computer Engineering. Having been established in 2003, the Department is a young department that is still in its growth phase. As of December 2007, we had 17 faculty positions, of which 13 were already filled with permanent academic staff and the remaining four were temporarily filled with visiting faculty. Our projected steady-state size is 28-30 faculty positions. We currently have approximately 60 postgraduate students and 200 undergraduate students, and at steady-state, these numbers are projected to increase significantly.

Research plays a central role in the activities of the Department and covers a wide spectrum of areas in electrical and computer engineering, including Biomedical Engineering, Computer Networks, Digital Hardware Design and Embedded Systems, Electronics, Information Systems, Instrumentation, Sensors and Nanotechnology, Intelligent Systems and Control, Power and Renewable Energy, Telecommunication Systems, Trustworthy System Design and Waves and Optics. The Department's faculty has already been able to attract significant funding from the Cyprus Research Promotion Foundation and the European Commission and to establish fruitful collaboration with local and overseas industries.

Our academic staff is a dynamic blend of experienced senior and promising junior faculty, making the Department a vibrant and exciting place, something that has been critical for its research success until now. The high quality and international visibility of our faculty is evident by the large number of citations they receive and the prestigious positions they hold, such as the Institute of Electrical and Electronics Engineering (IEEE) Fellow, IEEE Senior Member, Editor-in-Chief of the IEEE Transactions on Neural Networks, Associate Editor of the IEEE

../..

Transactions on Automatic Control, IEEE Transactions on Circuits and Systems, IEEE Transactions on Control Systems Technology and others. Our faculty has also been serving on technical programme committees and executive committees for several conferences and serving as guest editors of numerous special issues in international journals.

More detailed information about the Department, including courses that are offered, faculty research profiles and ongoing projects and activities can be found on the university website.

Christoforos Hadjicostis
Chairperson

CHARALAMBOS D. CHARALAMBOUS Associate Professor
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■ **STUDIES**

Old Dominion University, U.S.A., B.S. in Electrical Engineering, 1987
Old Dominion University, U.S.A., Master in Engineering, 1988
Old Dominion University, U.S.A., Doctor of Philosophy, 1992

■ **PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS**

The Institute of Electrical and Electronic Engineers, U.S.A. • IEEE Control Systems Society, U.S.A. • IEEE Communications Society, U.S.A. • IEEE Information Theory Society, U.S.A.

■ **EDITORIAL BOARDS**

IEEE Communication Letters (Associate Editor), U.S.A., IEEE

■ **RESEARCH INTERESTS**

Telecommunication Systems and Networks; Information Theory and Large Deviations; Stochastic Optimisation and Control; Stochastic Dynamic Games and Robustness; Markov Processes and Stochastic Differential Equations; Large Scale Distributed Systems

■ **RESEARCH PROGRAMMES (University of Cyprus 2005-2007)**

Convergence of Communication, Control, and Statistical Mechanics with Applications to Network Sensors and Tele-Operation

■ **RESEARCH PROGRAMMES (External Funding 2005-2007)**

Network Research Foundations and Trends

Cooperating Organizations: Centre for Research and Technology Hellas; Hellenic Institute of Transport, Greece; Technical University of Eindhoven, Netherlands; Ecole Polytechnique Federale de Lausanne, Switzerland; VTT Technical Research Centre of Finland, Finland; Fraunhofer German-Sino lab - HHI, Germany.

Funding: European Commission (STREP Programme)

Control of Dynamical Systems via Finite Capacity Communication

Channels: Theoretical Development and Applications

Cooperating Organizations: Texas A and M University, U.S.A.; Rayerson University, Canada; University of Thessaly, Greece; P.G. Solvenet Services Ltd Business, Cyprus. Funding: RPF, Cyprus

Robust Information Transmission and Control Subject to Uncertainty and Power Constraints

Funding: E.U. (Marie Curie Programme)

Development of Cross-Layer Algorithm for Optimization of Power Consumption in Wireless Networks via Directed Antennas.

Cooperative Organization: University of Thessaly, Greece.

Funding: RPF, Cyprus

Wireless Channel Simulator Based on Measurement Data and its Applications to Cellular Networks (Principal Investigator)
Cooperative Organizations: Canadian Communications Research Center, Canada; Intercollege, Cyprus. Funding: RPF, Cyprus

PUBLICATIONS

■ CHAPTERS IN BOOKS

C.D. Charalambous, A. Kyprianou and F. Rezaei, Relations Between Information Theory, Robustness and Statistical Mechanics of Stochastic Uncertain Systems via Large Deviations Theory, *Model Reduction and Coarse-Scaling Approaches for Multiscale Phenomena*, A.N. Gorban, et al. (Eds), Springer, Berlin, Heidelberg, New York, 245-265, 2006

■ SELECTED JOURNAL PUBLICATIONS

C.D. Charalambous and F. Rezaei, Stochastic Uncertain Systems Subject to Relative Entropy Constraints: Induced Norms and Monotonicity Properties of Minimax Games, *IEEE Transactions on Automatic Control*, Vol. 52, No. 4, 647-663, 2007

M.M. Olama, S.M. Djouadi, C.D. Charalambous, Stochastic Power Control for Time Varying Long Term Fading Wireless Networks, *EURASIP Journal on Applied Signal Processing*, Special Issue on Reliable Communications over Rapidly Time-Varying Channels, 1-13, 2006

F. Rezaei, N.U. Ahmed and C.D. Charalambous, Rate Distortion Theory for Abstract Sources with Potential Applications to Image Compression, *International Journal of Applied Mathematics*, Vol. 3, No. 2, 141-165, 2006

N.U. Ahmed and C.D. Charalambous, Measurement Strategy for Nonlinear Filtering, *SIAM Journal on Control and Optimization*, Vol. 45, No. 2, 519-531, 2006

N.U. Ahmed and C.D. Charalambous, Minimax Games for Stochastic Systems Subject to Relative Entropy Constraints: Applications to SDE's on Hilbert Space, *Mathematics of Control, Signals, and Systems*, 2006, www.editorialmanager.com/mcss/

J.L. Hibey and C.D. Charalambous, Quadratic Forms for Feynman Kac Semigroups, *Physics Letters A*, Vol. 356, No. 6, 446-451, 2006

C.D. Charalambous, S. Djouadi and D. Stojan, Stochastic power control for wireless networks via SDE's: probabilistic QoS measures, *IEEE Transactions on Information Theory*, Vol. 51, No. 12, 4396-4401, 2005

N. Polydorides and A. Kyprianou and C.D. Charalambous, Numerical Modeling for Atomic Force Microscopy Based Impedance Imaging, Proceedings of the Institution of Mechanical Engineers, Part N: *Journal of Nanoengineering and Nanosystems*, Vol. 219, No.14, 147-156, 2005

■ SELECTED CONFERENCE PROCEEDINGS

D. Stojan and C.D. Charalambous, Control of Jump Linear Systems over Jump Communication Channels: Source-Channel Matching Approach, 2007 *IEEE International Symposium on Information Theory*, Nice, France, 2491-2495, 2007

N.U. Ahmed and C.D. Charalambous, Relative Entropy Applied to Optimal Control of Stochastic Uncertain Systems on Hilbert Space, *Proceedings of the 2005 IEEE Conference on Decision and Control and European Conference on Control (CDC-ECC's)*, Seville, Spain, 1776-1782, 2005

GEORGIOS ELLINAS Assistant Professor
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■ **STUDIES**

- Columbia University in the City of New York, U.S.A., B.Sc. in Electrical Engineering, 1991
- Columbia University in the City of New York, U.S.A., M.Sc. in Electrical Engineering, 1993
- Columbia University in the City of New York, U.S.A., M.Phil. in Electrical Engineering, 1995
- Columbia University in the City of New York, U.S.A., Ph.D. in Electrical Engineering, 1998

■ **PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS**

- Institute of Electrical and Electronics Engineers (IEEE), U.S.A. (Senior Member) • Optical Society of America (OSA), U.S.A. • Photonics21 Association, E.U.

■ **RESEARCH INTERESTS**

- Telecommunications Networks, Optimization, QoS, Performance Evaluation, Protocols; Optical Networks, Routing, Restoration, Security, Architectures; Water Distribution Networks; Networks on Chips; Construction Scheduling, Resource Allocation

■ **RESEARCH PROGRAMMES (External Funding 2005-2007)**

- Development of a simulation tool for optical networks
Cooperating Organization: SignalGenerix, Cyprus. Funding: RPF, Cyprus
- Broadband optical-wireless access networks
Cooperating Organization: Georgia Institute of Technology, U.S.A.
Funding: RPF, Cyprus
- Decentralized Ethernet passive optical networks
Funding: Marie Curie International Re-Integration Grant, E.U.
- Secure Communications
Cooperating Organization: SignalGenerix, Cyprus. Funding: RPF, Cyprus

■ **PATENTS**

- G.-K. Chang, G. Ellinas and A. M. Chowdhury, Optical layer multicasting using a multiple sub-carrier header and a multicast switch with active header insertion via reflective single sideband optical processing, U.S. Patent 7,039,316, May 2, 2006
- G.-K. Chang, G. Ellinas and A. M. Chowdhury, Optical layer multicasting using a single sub-carrier header and a multicast switch with active header insertion via light circulation, U.S. Patent 6,850,515, February 1, 2005

- G.-K. Chang, G. Ellinas and A. M. Chowdhury, Secure optical layer multicasting to effect survivability, U.S. Patent 6,850,707, February 1, 2005
- G.-K. Chang, G. Ellinas and A. M. Chowdhury, Optical layer multicasting, U.S. Patent 6,873,797, March 29, 2005
- G. Ellinas, K. Bala, G.-K. Chang, Connection Set-up and Path Assignment in Wavelength Division Multiplexed Ring Networks, Canadian Patent CA 2319805, July 12, 2005
- G.-K. Chang, G. Ellinas and A. M. Chowdhury, Optical layer multicasting using a single sub-carrier header and a multicast switch with active header insertion, U.S. Patent 6,934,472, August 23, 2005

PUBLICATIONS

■ BOOKS

Authorship

E. Bouillet, G. Ellinas, J-F. Labourdette, "...", *Path Routing in Mesh Optical Networks*, J. Wiley and Sons, 1st Edition, 2007

■ SELECTED JOURNAL PUBLICATIONS

A. Hadjiantonis, et al., Evolution to a Converged Layer 1, 2 in a Hybrid Native Ethernet-Over WDM-Based Optical Networking Model, *IEEE Journal on Selected Areas in Communications*, Vol. 25, No. 5, 681- 693, 2007

Z. Jia, et al., Simultaneous Generation of Independent Wired and Wireless Services Using a Single Modulator in Millimeter-Wave-Band Radio-Over-Fiber Systems, *IEEE Photonics Technology Letters*, Vol. 19, No. 20, 1691-1693, 2007

Z. Jia, J. Yu, G. Ellinas, "...", Key Enabling Technologies for Optical-Wireless Networks: Optical Millimeter-Wave Generation, Wavelength Reuse, and Architecture, *IEEE/OSA Journal of Lightwave Technology*, Vol. 25, No. 11, 3452-3471, 2007

A. Khalil, et al., Dynamic Provisioning of Low-Speed Unicast/Multicast Traffic Demands in Mesh-Based WDM Optical Networks, *IEEE/OSA Journal of Lightwave Technology*, Vol. 24, No. 2, 681- 693, 2006

N. Antoniadis, et al., Value Proposition for Amplets as Banded Amplification Solutions in Evolving WDM Metro Network Architectures, *OSA Journal of Optical Networking*, Vol. 4, No. 3, 101-112, 2005

■ SELECTED CONFERENCE PROCEEDINGS

Z. Jia, J. Yu, G. Ellinas, "...", A Novel Full-Duplex Wavelength-Reuse Optical-Wireless Architecture with Directly Modulated SOA as Upstream Colorless Amplified Modulator, *Proceedings IEEE/OSA OFC*, Anaheim, CA, 1-3, 2007

J. Yu, Z. Jia, G. Ellinas, "...", Demonstration of a Novel WDM-PON Access Network Compatible with ROF System to Provide 2.5 Gb/s per Channel Symmetric Data Services, *Proceedings IEEE/OSA OFC*, Anaheim, CA, 1-3, 2007

T. Rahman, G. Ellinas, M. Ali, Building Light-forests: Routing and Wavelength Assignment for Group Multicast Sessions in Optical Grid Networks, *Proceedings IEEE/OSA OFC*, Anaheim, CA, 1-3, 2006

T. Rahman, G. Ellinas, Protection of Multicast Sessions in WDM Mesh Optical Networks, *IEEE/OSA Proceedings OFC*, Anaheim, CA, 1-3, 2005

G. Ellinas, N. Antoniadis, Evolving WDM Metro Network Architectures, *Proceedings of the 18th IEEE/LEOS Annual Meeting on Optical Networks and Systems*, Sydney, Australia, 1-2, 2005

GEORGE E. GEORGHIOU Assistant Professor
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■ **STUDIES**

University of Cambridge, U.K., B.A., 1995
University of Cambridge, U.K., M.Eng., 1996
University of Cambridge, U.K. M.A., 1997
University of Cambridge, U.K., Ph.D., 2000

■ **PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS**

CENELEC Technical Committee on PV (TX82), Europe • CENELEC Technical Committee on EM (TX106B), Europe • EU PV Platform: Mirror Group, Europe • Cyprus Energy Agency (Management Board Member)

■ **RESEARCH INTERESTS**

Renewable Sources of Energy; Photovoltaics; Multiphysics Modelling; Plasma; Electromagnetics

■ **RESEARCH PROGRAMMES (University of Cyprus 2005-2007)**

Large Scale Information, Communication, Control and Sensing Devices with Applications to Sensor Networks

■ **RESEARCH PROGRAMMES (External Funding 2005-2007)**

Multi approach for high efficiency integrated and intelligent concentrating PV modules (systems), CESI RICERCA (Coordinator)
Cooperation with 15 partners from 10 countries. Funding: FP7, E.U.

Measurement of the electromagnetic fields emitted from the Base Stations belonging to the Cyprus Telecommunications Authority throughout Cyprus

Funding: Cyprus Telecommunications Authority

Fusion, Plasma surface interactions, FUTURE-CY unit

Funding: Euratom

Characterisation of novel photovoltaics systems of improved performance through continuous monitoring of performance and meteorological data (2006 LOUNA)

Cooperating Organizations: Institute of Physical Electronics, University of Stuttgart, Germany; Energy Conversion Group, Department of Engineering, University of Cambridge, U.K.; Cyprus Energy Regulatory Authority, Cyprus; Department of Energy, Electricity Authority of Cyprus. Funding: RPF, Cyprus

Partial Discharge Monitoring Equipment for the identification of faults in high and medium voltage cable networks

Funding: Electricity Authority of Cyprus

Super-resolution microwave imaging with metamaterial lenses (2006 NRIMETA)

Funding: RPF, Cyprus

Novel Photovoltaic modules and systems for improved efficiencies

Funding: INTERREG, E.U.

Annual Energy Yield of Different Photovoltaic Technologies at Three Different Locations in Europe and Africa

Funding: German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

Design of novel systems for the manipulation of nanoparticles using electronic methods

Funding: RPF, Cyprus

Development of strategy for determining the integrity of cable systems and accessories through on-line partial discharge (PD) condition monitoring

Cooperating Organization: Electricity Authority Cyprus.

Funding: RPF, Cyprus

PUBLICATIONS

■ SELECTED JOURNAL PUBLICATIONS

N. Loucaides, A. Ramos and G. E. Georghiou, Novel systems for configurable AC electroosmotic pumping, *Micro Nanofluidics Journal*, Vol. 3, No. 6, 709-714, 2007

D. Kim, C. Won and G. E. Georghiou, Assessment of the sensitivity to field localization of various parameters during TMS, *IEEE Trans. Magnetics*, 4016-4022, 2007

A. Papadakis, G. E. Georghiou and A. C. Metaxas, Two-dimensional axisymmetric simulations and the heating effects associated with DC atmospheric pressure discharges during the post-streamer stage, *IET Science, Meas. and Tech*, Vol. 1, 113-120, 2007

N. G. Loucaides, G. E. Georghiou and C. D. Charalambous, Numerical simulation of the dielectrophoretic concentration of DNA particles and the effect of AC electroosmosis, *Journal of Physics, Conference Series (JPCS)*, Vol. 61, 718-723, 2007

A. Kyprianou, et al., Wavelet packet denoising for on-line partial discharge detection in cables and its application to experimental field results, *Science Measurement and Technology*, Vol. 17, 2367-2379, 2006

G. E. Georghiou, et al., Numerical modeling of atmospheric pressure gas discharges leading to plasma production, *Review Paper J. Phys. D: Appl. Phys.*, Vol. 38, R303-328, 2005

A. Srivastava, et al., DNA Sample preconcentration in microdevice electrophoresis, *Electrophoresis*, Vol. 26, 1130-1143, 2005

A. Papadakis, G. E. Georghiou and A. C. Metaxas, Numerical Algorithm for the Transition from Non-Thermal to Thermal Plasma, *Plasma Sources Science and Technology*, Vol. 14, 250-258, 2005

■ SELECTED CONFERENCE PROCEEDINGS

D. Evagorou, et al., Classification of Partial Discharge Signals using the probabilistic Neural Network method, *9th IEEE International Conference on Solid Dielectrics*, Winchester, U.K., 609-615, 2007

N. Loucaides, G. E. Georghiou, C. D. Charalambous, "...", Combined Dielectrophoretic and Electrohydrodynamic manipulation of nanoparticles, *4th International Symposium for Nanomanufacturing*, ISNM06, MIT, U.S.A., 91-96, 2006

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■ STUDIES

Imperial College London, U.K., M.Eng. in Electrical and Electronic Eng., 1998

Imperial College London, U.K., Ph.D. in Biomedical Electronics, 2003

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

IEEE (Institute of Electrical and Electronic Engineers) • IEEE Circuits and Systems Society (Analog Signal Processing Technical Committee) • IEEE Circuits and Systems Society (Biomedical Circuits and Systems Technical Committee)

■ RESEARCH INTERESTS

Bioinspired Electronic Systems; Low-Power Analog ASICs; Asynchronous-Digital ASICs; Implantable Biomedical Devices; Sensors and Related Systems; Non-Invasive Prosthetics

■ RESEARCH PROGRAMMES (External Funding 2005-2007)

Towards a MEMS Based Vestibular Implant for Balance Restoration

Cooperating Organization: Imperial College, U.K. Funding: RPF, Cyprus

A Biomimetic Micro-Imager for Neural Vision System

Cooperating Organization: Johns Hopkins University, U.S.A.

Funding: RPF, Cyprus

PUBLICATIONS

■ SELECTED JOURNAL PUBLICATIONS

J. Georgiou and A.G. Andreou, Address-Data Event Representation (ADER) for Communication in Multichip Neuromorphic System Architectures, *Electronic Letters*, Vol. 43, Issue 14, 767-769, 2007

J.Georgiou and A.G. Andreou, High-speed, address-encoding arbiter architecture, *Electronic Letters*, Vol. 42-3, P170-171, 2006

J. Georgiou and C. Toumazou, A 126- μ W Cochlear Chip For a Totally Implantable System, *IEEE Journal of Solid State Circuits*, Vol. 40, Issue: 2, 430–443, 2005

■ SELECTED CONFERENCE PROCEEDINGS

Savvas Koudounas and Julius Georgiou, A Reduced Area, Low-Power CMOS Bandgap Reference Circuit, *Circuits and Systems, ISCAS'07*, New Orleans, U.S.A., 3832-3835, 2007

Timothy Constantinou, Julius Georgiou, Charalambos C., "...", Towards and Implantable Vestibular Prosthesis: The Surgical Challenges, *3rd International IEEE/EMBS Conference Neural Engineering, CNE'07*, 40-43, 2007

Julius Georgiou and Andreas G. Andreou, Address Data Event Representation (ADER) for Efficient Neuromorphic Communication, *Conference on Information Sciences and Systems, CISS 2007*, Baltimore, U.S.A., 755-758, 2007

Julius Georgiou, Andreas G. Andreou and Philippe O. Pouliquen, A Mixed Analog/Digital Processor For Cortical Computations in 3D SOI-CMOS, *Circuits and Systems, ISCAS'06*, Kos, Greece, 4955-4958, 2006

Julius Georgiou and A.G. Andreou, A Mixed Analog/Digital Asynchronous Processor for Network Models of Cortical Computation, *Ninth International Conference on Cognitive and Neural Systems*, Boston, U.S.A., 45, 2005

CHRISTOFOROS HADJICOSTIS Associate Professor Department of Electrical and Computer Engineering

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■ STUDIES

MIT, U.S.A., S.B. in Electrical Engineering, 1993

MIT, U.S.A., S.B. in Computer Science and Engineering, 1993

MIT, U.S.A., M.Eng. in Electrical Engineering and Computer Science, 1995

MIT, U.S.A., S.B. in Mathematics, 1999

MIT, U.S.A., Ph.D. in Electrical Engineering and Computer Science, 1999

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

IEEE Circuits and Systems Society, U.S.A. (Senior Member) • IEEE Control Systems Society, U.S.A. (Senior Member) • IEEE Information Theory Society, U.S.A. (Senior Member) • HKN (Electrical and Computer Engineering Honor Society), U.S.A. • Sigma Xi (Society for Research Scientists), U.S.A.

■ EDITORIAL BOARDS

International Journal of Systems, Control and Communications (IJSCC), (Guest Associate Editor for Special Issue on "Information Processing and Decision Making in Distributed Control Systems"), Switzerland, Inderscience
IEEE Transactions on Control Systems Technology (Associate Editor), U.S.A., IEEE
IEEE Transactions on Circuits and Systems (Regular Papers), (Associate Editor), U.S.A., IEEE

■ RESEARCH INTERESTS

Fault-Tolerant Combinational/Sequential Systems; Biosequencing, Boolean Networks, Regulatory Models; Monitoring, Diagnosis, Control of Systems/Networks; Model Classification and Anomaly Detection; Coding and Graph Theory

■ RESEARCH PROGRAMMES (External Funding 2005-2007)

CAREER: An Integrated Approach to Fault Tolerance in Discrete-Time Dynamic Systems

Funding: National Science Foundation, U.S.A.

ITR: Enabling Novel Digital Sequential Circuit Designs through Error Control and Noise Tolerance Techniques

Funding: National Science Foundation, U.S.A.

Dynamical Models in Fault-Tolerant Operation and Control of Energy Processing Systems

Funding: National Science Foundation, U.S.A.

ITR: Diagnosis and Assessment of Faults, Misbehavior and Threats in Distributed Systems and Networks

Funding: National Science Foundation, U.S.A.

Distributed Diagnosis and Assessment of Faults, Misbehavior and Threats in Heterogeneous Networked Systems

Funding: UIUC/CNRS/INRIA, Collaboration in Computer Science, U.S.A./France

Enabling Diagnosis of Faults and Misbehavior in Heterogeneous Networked Systems via Structured Redundancy

Funding: Boeing, U.S.A.

Two year extension for "Architectures for Secure and Robust Distributed Infrastructures"

Funding: Air Force Research Office, U.S.A.

Resilient Network Control Systems

Funding: European Commission

Control for Coordination of Distributed Systems

Funding: European Commission

PUBLICATIONS

■ CHAPTERS IN BOOKS

Y. Xiao, C. N. Hadjicostis and K. Thulasiraman, The d-Identifying Codes Problem for Vertex Identification in Graphs, *Probabilistic Analysis and an Approximation Algorithm*, International Computing and Combinatorics Conference 2006, Series Lecture Notes in Computer Science, Vol. 4112, Springer-Verlag, 284-298, 2006

■ SELECTED JOURNAL PUBLICATIONS

- Y. Wu and C. N. Hadjicostis, Soft-Decision Decoding of Linear Block Codes Using Preprocessing and Diversification, *IEEE Transactions on Information Theory*, Vol. 53, No. 1, 378-393, 2007
- S. Sundaram and C. N. Hadjicostis, Delayed Observers for Linear Systems with Unknown Inputs, *IEEE Transactions on Automatic Control*, Vol. 52, No. 2, 334-339, 2007
- Y. Wu and C. N. Hadjicostis, Soft-Decision Decoding Using Ordered Recodings on the Most Reliable Basis, *IEEE Transactions on Information Theory*, Vol. 53, No. 2, 829-836, 2007
- P. G. Voulgaris, C. N. Hadjicostis and R. Touri, A Robust Control Approach to Digital Communications: A Perfect Reconstruction Paradigm, *IEEE Transactions on Signal Processing*, Vol. 55, No. 9, 4444-4467, 2007
- T. Le and C. N. Hadjicostis, Max-Product Algorithms for the Generalized Multiple Fault Diagnosis Problem, *IEEE Transactions on Systems, Man and Cybernetics (Part B)*, Vol. 37, No. 6, 1607-1621, 2007
- S. Sundaram and C. N. Hadjicostis, Error Detection and Correction in Switched Linear Controllers via Periodic and Non-Concurrent Checks, *Automatica*, Vol. 42, No. 3, 383-391, 2006
- Y. Wu and C. N. Hadjicostis, On Solving Composite Power Polynomial Equations, *Mathematics of Computation*, Vol. 74, No. 250, 853-868, 2005
- C. N. Hadjicostis and G. C. Verghese, Coding Approaches to Fault Tolerance in Linear Dynamic Systems, *IEEE Transactions on Information Theory*, Vol. 51, No. 1, 210-228, 2005
- C. N. Hadjicostis, Finite-State Machine Embeddings for Non-Concurrent Error Detection and Identification, *IEEE Transactions on Automatic Control*, Vol. 50, No. 2, 142-153, 2005
- C. N. Hadjicostis, Aliasing Probability Calculations for Arbitrary Compaction under Independently Selected Random Test Vectors, *IEEE Transactions on Computers*, Vol. 54, No. 12, 1614-1627, 2005

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■ STUDIES

- University of Leeds, U.K., B.Eng. in Electronic and Electrical Engineering, 1987
- University of Leeds, U.K., Ph.D. in Electronic and Electrical Engineering, 1991

■ RESEARCH INTERESTS

Optoelectronics; Optical Communications; Microwave Photonics

PUBLICATIONS

■ SELECTED CONFERENCE PROCEEDINGS

S. Iezekiel, Travelling-wave concepts applied to microwave photonic components and links, *IEEE International Symposium on Microwaves*, Bangalore, 3-9, 2006

■ DISTINGUISHED PUBLICATIONS (before 2005)

S. Bennett, C. M. Snowden and S. Iezekiel, Nonlinear Dynamics in Directly Modulated Multiple Quantum Well Laser Diodes, *IEEE Journal of Quantum Electronics*, Vol. QE-33, 2076-2083, 1997

B. J. Dixon, R. D. Pollard and S. Iezekiel, Orthogonal Frequency Division Multiplexing in Wireless Communication Systems with Multimode Fiber Feeds, *IEEE Trans. Microwave Theory and Tech.*, Vol. 49, 1404-1409, 2001

ELIAS KYRIAKIDES Lecturer
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■ STUDIES

Illinois Institute of Technology, U.S.A., B.S. in Electrical Engineering, 2000
Arizona State University, U.S.A., M.S. in Electrical Engineering, 2001
Arizona State University, U.S.A., Ph.D. in Electrical Engineering, 2003

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

Institute of Electrical and Electronic Engineers (IEEE) • Institution of Engineering and Technology (IET), U.K. • Power Engineering Society (PES) of the IEEE • International Council on Large Electric Systems (CIGRE), Cyprus • Cyprus Scientific and Technical Chamber (ETEK), Cyprus • International Network for Engineering Education and Research (INEER)

■ EDITORIAL BOARDS

Simulation Modelling Practice and Theory (Area Editor), Elsevier
The Open Electrical and Electronic Engineering Journal, Bentham

■ RESEARCH INTERESTS

Power System Security Enhancement; Modelling and Estimation of Electric Machinery; Power System Generation Optimization; Power Quality; Stability and Operation of Renewable Energy Sources Connected to the Power Grid

■ RESEARCH PROGRAMMES (University of Cyprus 2005-2007)

Nonlinear Modelling and parameter estimation of synchronous machines using online measurements

■ RESEARCH PROGRAMMES (External Funding 2005-2007)

Power quality assessment in active distribution networks (PQACTNET)

Cooperating Organization: University Politehnica of Bucharest, Romania. Funding: RPF, Cyprus

Electric load forecasting using neural networks (ΠΗΛΦΟΡ)

Cooperating Organizations: Cyprus Energy Regulatory Authority; University of Missouri Rolla, U.S.A.. Funding: RPF, Cyprus

System security enhancement through massively deployed sensors (SENSORS)

Cooperating Organization: Arizona State University, U.S.A. Funding: RPF, Cyprus

PUBLICATIONS

■ CHAPTERS IN BOOKS

E. Kyriakides and M. Polycarpou, Short term electric load forecasting: a tutorial, K. Chen, W. Lipo (Eds), *Trends in Neural Computation*, Berlin, Springer-Verlag, 391-418, 2007

■ SELECTED JOURNAL PUBLICATIONS

E. Kyriakides, M. M. Albu and G. T. Heydt, Identification of the standard parameters of a steam-turbine generator using wavelet denoising, *Journal of Electric Power Components and Systems*, Vol. 38, No. 10, 1145-1158, 2007

E. Kyriakides and G. T. Heydt, Calculating confidence intervals in parameter estimation: a case study, *IEEE Transactions on Power Delivery*, Vol. 21, No.1, 508-509, 2006

E. Kyriakides, G. T. Heydt, and V. Vittal, On-line parameter estimation of round rotor synchronous generators including magnetic saturation, *IEEE Transactions on Energy Conversion*, Vol. 20, No.3, 529-537, 2005

N. Logić, E. Kyriakides, and G. T. Heydt, Lp state estimators for power systems, *Journal of Electric Power Components and Systems*, Vol. 33, No. 7, 699-712, 2005

E. Kyriakides, S. Suryanarayanan, and G. T. Heydt, State estimation in power engineering using the Huber robust regression technique, *IEEE Transactions on Power Systems*, Vol. 20, No. 2, 1183-1184, 2005

■ SELECTED CONFERENCE PROCEEDINGS

S. Chakrabarti and E. Kyriakides, Placement of phasor measurement units for state estimation with voltage stability considerations, *Australasian Universities Power Engineering Conference (AUPEC 2007)*, Perth, Australia, 38-42, 2007

I. Ciornei and E. Kyriakides, A multi-agent genetic algorithm for the solution of the economic dispatch problem, *3rd International Conference on Energy and Environment (CIEM 2007)*, Bucharest, Romania, 1-8, 2007

S. Chakrabarti and E. Kyriakides, Grid-connected hybrid energy system for a typical home in Cyprus, *Renewable Energy Sources and Energy Efficiency Conference*, Nicosia, Cyprus, 1-9, 2007

E. Kyriakides, J. W. Stahlhut and G. T. Heydt, A next generation alarm processing algorithm incorporating recommendations and decisions on wide area control, *IEEE Power Engineering Society General Meeting, Tampa, FL, U.S.A., 1-5, 2007*

E. Kyriakides, A comprehensive algorithm for the estimation of synchronous generator parameters, *XVII International Conference on Electric Machines (ICEM 2006), Chania, Greece, 1-6, 2006*

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■ **STUDIES**

Southern Illinois University, U.S.A, B.Sc. in Computer Science, 1996
Southern Illinois University, U.S.A, M.Sc. in Computer Science, 1998
Southern Illinois University, U.S.A, Ph.D. in Electrical and Computer Engineering, 2002

■ **PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS**

Institute of Electrical and Electronics Engineers (IEEE) • IEEE Test Technology Technical Council • Association for Computing Machinery (ACM) • ACM Special Interest Group in Design Automation

■ **RESEARCH INTERESTS**

VLSI Test and Design for Testability; Electronic Design Automation; Logic Synthesis, Optimisation and Verification; Algorithms for VLSI Applications; Digital Integrated Circuits; Embedded Systems and Modern Computer Architectures

■ **RESEARCH PROGRAMMES (External Funding 2005-2007)**

Validation of Distributed Collaboration for CMPs

Cooperating Organizations: Intel Corporation; Microprocessor Technology Labs, U.S.A. Funding: RPF, Cyprus

Test Automation for Timing Defects in VLSI circuits using Non-Enumerative methods

Cooperating Organization: Southern Illinois University, U.S.A. Funding: RPF, Cyprus

PUBLICATIONS

■ **SELECTED JOURNAL PUBLICATIONS**

S. Neophytou, M. K. Michael and S. Tragoudas, Functions for Quality Transition Fault Tests and their Applications in Test Set Enhancement, *IEEE Transactions on Computer-Aided Design (CAD) of Integrated Circuits and Systems*, Vol. 25, No. 12, 3026-3034, 2006

M. K. Michael and S. Tragoudas, Function-based Compact Test Pattern Generation for Path Delay Faults, *IEEE Transactions on Very Large Scale Integration (VLSI)*, Vol. 13, No. 8, 996-1001, 2005

■ SELECTED CONFERENCE PROCEEDINGS

S. Neophytou and M. K. Michael, Hierarchical Fault Compatibility Identification for Compact Test Generation with a Large Number of Unspecified Bits, *Proceedings of IEEE International Symposium on Defect and Fault Tolerance in VLSI Systems*, Rome, Italy, 439-337, 2007

R. Adapa, S. Tragoudas and M. K. Michael, Accelerating Diagnosis via Dominance Relations Between Sets of Faults, *Proceedings of IEEE VLSI Test Symposium*, Berkeley-CA, U.S.A., 219-224, 2007

K. Christou, M. K. Michael and S. Tragoudas, Implicit Critical PDF Test Generation with Maximal Test Efficiency, *Proceedings of IEEE International Symposium on Defect and Fault Tolerance in VLSI Systems*, Washington-DC, U.S.A., 50-58, 2006

S. Neophytou, M. K. Michael and S. Tragoudas, Efficient Deterministic Test Generation for BIST Schemes with LFSR Reseeding, *Proceedings of IEEE International On-Line Testing Symposium*, Como, Italy, 43-48, 2006

R. Adapa, S. Tragoudas and M. K. Michael, Sub-Faults Identification for Collapsing in Diagnosis, *Proceedings of IEEE International Symposium on Circuits and Systems*, Kos, Greece, 815-818, 2006

M. K. Michael, K. Christou and S. Tragoudas, Towards finding path delay fault tests with high test efficiency using ZBDDs, *IEEE/ACM Proceedings of International Conference on Computer Design*, San Jose-CA, U.S.A., 464-467, 2005

S. Neophytou, M. K. Michael and S. Tragoudas, Test set enhancement for quality transition faults using function-based methods, *Proceedings of IEEE/ACM Great Lakes Symposium on VLSI*, Chicago-IL, U.S.A., 182-187, 2005

M. K. Michael, S. Neophytou and S. Tragoudas, Functions for Quality Transition Fault Tests, *Proceedings of IEEE/ACM International Symposium on Quality Electronic Design*, San Jose, CA, U.S.A., 327-332, 2005

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■ STUDIES

University of Massachusetts, Amherst, U.S.A., B.Sc. in Electrical Engineering, 1994

University of Massachusetts, Amherst, U.S.A., MBA, 1999

University of Massachusetts, Amherst, U.S.A., Ph.D. in Electrical and Computer Engineering, 1999

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

Institute of Electrical and Electronics Engineers (IEEE), U.S.A. • Association for Computing Machinery (ACM), U.S.A.

■ EDITORIAL BOARDS

Control Systems Society Conference Editorial Board (Associate Editor),
U.S.A., IEEE

■ RESEARCH INTERESTS

Computer Networks; Wireless Sensor Networks; Localization; Control of Discrete Event Systems (DES); Simulation

■ RESEARCH PROGRAMMES (External Funding 2005-2007)

Localization for next generation wireless communication networks

Cooperating Organizations: ICCS, Greece; SignalGenerix, Cyprus.

Funding: RPF, Cyprus

Environmental Monitoring Using Sensor Networks

Cooperating Organizations: National and Kapodistrian University of

Athens, Greece; Water Works Department, Cyprus. Funding: RPF, Cyprus

Environmental Monitoring Using Sensor Networks with Stationary and Mobile Nodes

Cooperating Organizations: NTUA, Greece; Water Works Department,

Cyprus. Funding: RPF, Cyprus

Quality of Service Provisioning for Real-Time Applications

Cooperating Organizations: Boston University, U.S.A.; Hellenic Technical,

Cyprus. Funding: RPF, Cyprus

Enabling Technologies for the Delivery of Location Based Services in Wireless Networks

Cooperating Organizations: CYTA, Cyprus; University of York, Canada.

Funding: RPF, Cyprus

A Framework for Delivering Quality of Service Guarantees in Communication Networks

Cooperating Organization: Boston University, U.S.A.

Funding: RPF, Cyprus

Infrastructure Grant: Wireless Sensor Networking Laboratory

Cooperating Organizations: SignalGenerix, Cyprus, Intracom, Greece.

Funding: RPF, Cyprus

NoE: CRUISE: CReating Ubiquitous Intelligent Sensing Environments

Cooperation with 32 partners. Funding: FP6, E.U.

NoE: E-NEXT: Emerging Networking Technologies

Cooperation with over 25 partners. Funding: FP6, E.U.

Control System for Quality Control and Safety in SPAs

Cooperating Organizations: Signal Generix, Cyprus; Aphrodite Hills,

Cyprus. Funding: RPF, Cyprus

COST295 DYNAMO: Dynamic Communication Networks

Cooperation with over 25 partners. Funding: E.U.

MOTIVE: Mobile Terminal Information Value Added Functionality
Cooperating Organizations: ICCS, Greece; Vodafone, Greece; SFR, France; VTT, Finland; Siemens, Germany; Apex, Switzerland; AS Regio, Estonia. Funding: FP6, E.U.

Infrastructure Grant: New Generation Research Network IPv6
Cooperating Organization: Cyprus College, Cyprus. Funding: RPF, Cyprus

PUBLICATIONS

■ SELECTED JOURNAL PUBLICATIONS

C.G. Panayiotou and C.G. Cassandras, Infinitesimal Perturbation Analysis and Optimization for Make-To-Stock Manufacturing Systems Based on Stochastic Fluid Models, *Journal of Discrete Event Dynamic Systems*, Vol. 16, No., 109-142, 2006

■ SELECTED CONFERENCE PROCEEDINGS

M.P. Michaelides and C.G. Panayiotou, Subtract on Negative Add on Positive (SNAP) Estimation Algorithm for Sensor Networks, *Proceedings of the 2007 IEEE International Symposium on Signal Processing and Information Technology*, Egypt, 86-91, 2007

M.P. Michaelides and C.G. Panayiotou, Event Detection Using Sensor Networks: A Case for a Correlation Detector, *Proceedings of the IEEE Conference on Decision and Control*, New Orleans, U.S.A., 1559-1564, 2007

M.M. Markou and C.G. Panayiotou, Optimization of Discrete Event System Parameters using SFM-Based Infinitesimal Perturbation Analysis Estimates, *Proceedings of the IEEE Conference on Decision and Control*, New Orleans, U.S.A., 5068-5073, 2007

M.P. Michaelides and C.G. Panayiotou, Exploiting Spatial Correlation for Improving Coverage in Sensor Networks, *Proceedings of the IEEE GLOBECOM*, Washington DC, U.S.A., 1329-1333, 2007

M.M. Markou, and C.G. Panayiotou, Dynamic Control and Optimization of Buffer Size in Multiclass Wireless Networks, *Proceedings of the IEEE GLOBECOM*, DOI:10.1109/GLOCOM.2006.154, San Francisco, U.S.A., 1-5, 2006

M.P. Michaelides and C.G. Panayiotou, Event Detection Using Sensor Networks, *Proceedings of the IEEE Conference on Decision and Control*, San Diego, U.S.A., 6784-6789, 2006

C.G. Panayiotou, W. Howell, M.C. Fu, Online Traffic Light Control Through Gradient Estimation Using Stochastic Fluid Models, *Proceedings of the World Congress of International Federation of Automatic Control (IFAC World Congress)*, Prague, 2005
http://www.eng.ucy.ac.cy/christos/Papers/PHF_IFAC05.pdf

I.G. Papageorgiou, C.D. Charalambous, C.G. Panayiotou, An Enhanced Received Signal Level Cellular Location Determination Method via Maximum Likelihood and Kalman Filtering, *Proceedings of the IEEE Wireless Communication Networks Conference*, New Orleans, U.S.A., 2524-2529, 2005

M.M. Markou and C.G. Panayiotou, Dynamic Control and Optimization of Buffer Size in Wireless Networks, *Proceedings of the IEEE Vehicular Technology Conference*, Stockholm, Sweden, 2162-2166, 2005

CONSTANTINOS PITRIS Assistant Professor Department of Electrical and Computer Engineering

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■ STUDIES

University of Texas at Austin, U.S.A., B.S. in Electrical Engineering, 1993
 University of Texas at Austin, U.S.A., M.S. in Electrical Engineering, 1995
 Massachusetts Institute of Technology, U.S.A., Ph.D. in Medical and
 Electrical Engineering, 2000
 Harvard Medical School, U.S.A., M.D. (medicine), 2002

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

Institute of Electrical and Electronic Engineers (IEEE) • Optical Society of
 America (OSA) • Cyprus Association of Medical Physics and Biomedical
 Engineering (CAMPBE) • International Society for Optical Engineering
 (SPIE)

■ RESEARCH INTERESTS

Biomedical Imaging and Applied Optics

■ EXTERNAL RESEARCH PROGRAMMES (2005-2007)

Early diagnosis of Melanoma with High Frequency Ultrasound
 (Coordinator/Principal Investigator)
 Funding: RPF, Cyprus

Diagnosis of Urinary Tract Infections using Surface Enhanced Raman
 Spectroscopy from bioactivated nano-surfaces (Coordinator/Principal
 Investigator)
 Funding: RPF, Cyprus

Neurorraphy guidance using Optical Coherence Tomography
 (Coordinator/Principal Investigator)
 Funding: RPF, Cyprus

Fast UTI diagnosis and antibiogram from nanosurface-enhanced Raman
 (Coordinator/Co-Investigator)
 Funding: RPF, Cyprus

PUBLICATIONS

■ SELECTED JOURNAL PUBLICATIONS

X. Li, S. Martin, C. Pitris, "...", High-resolution optical coherence tomographic imaging of
 osteoarthritic cartilage during open knee surgery, *Arthritis Res Ther*, 7:R318-R323, 2005
 C. Pitris, P. Eracleous, Transillumination Spatially Modulated Illumination Microscopy,
Optics Letters, 30:2590-2592, 2005

■ SELECTED CONFERENCE PROCEEDINGS

C. Pitris, P. Ioannides, A. Kartakoulis, Scatterer size-based analysis of Optical Coherence Tomography Images, *Proceedings SPIE 6429*, 64291T, 1-8, 2007

A. Kartakoulis, C. Pitris, Scatterer size-based analysis of Optical Coherence Tomography Signals, *Proceedings SPIE 6627*, 66270N, 1-8, 2007

P. Ioannides, C. Nicolaou, C. Pitris, Decomposition and Analysis of Unresolvable Optical Coherence Tomography Signals, *Proceedings SPIE 6079*, 60791U, 1-8, 2006

C. Pitris, P. Patsalis, Transillumination spatially modulated illumination microscopy for human chromosome imaging, *Proceedings SPIE 5699*, DOI:10.1117/12.586523, 1-8, 2005

P. Ioannides, C. Nicolaou, C. Pitris, Wavelet Decomposition and Unresolvable Component Analysis of Optical Coherence Tomography Signals, *Proceedings SPIE 5861*, 586109, 1-8, 2005

MARIOS POLYCARPOU Professor Department of Electrical and Computer Engineering

TEL.: 22892252, FAX: 22892260, E-mail: mpolycar@ucy.ac.cy

■ STUDIES

Rice University, U.S.A., B.A. in Computer Science, 1987

Rice University, U.S.A., B.Sc. in Electrical Engineering, 1987

University of Southern California, U.S.A., M.S. in Electrical Engineering, 1989

University of Southern California, U.S.A., Ph.D. in Electrical Engineering, 1992

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

Institute of Electrical and Electronic Engineers (IEEE), U.S.A. (Fellow) • IEEE

Control Systems Society, U.S.A. (Member of the Board of Governors) •

International Federation of Automatic Control (IFAC), U.S.A. (Member of

IFAC Technical Committee SAFEPROCESS: Detection, Supervision and

Safety of Technical Processes) • IEEE Control Systems Society Technical

Committee on Intelligent Control (Chair), U.S.A. • Mediterranean Control

Association (Board Member)

■ EDITORIAL BOARDS

IEEE Transactions on Neural Networks, U.S.A. (Editor-in-Chief)

International Journal of Applied Mathematics and Computer Science

(Associate Editor), Poland

International Journal of Intelligent Systems Technologies and Applications,

Interscience Publishers (Associate Editor), U.K.

■ RESEARCH INTERESTS

Intelligent Systems and Control; Adaptive and Embedded Systems;

Computational Intelligence and Neural Networks; Fault Diagnosis and Fault Accommodation; Cooperative Control and Distributed Agents; Critical Infrastructure Systems

■ **RESEARCH PROGRAMMES (University of Cyprus 2005-2007)**

Intelligent Computer Control of Water Systems in Cyprus

■ **RESEARCH PROGRAMMES (External Funding 2005-2007)**

The incorporation of the “inertor” in the design of vehicle suspension systems

Cooperating Organization: University of Cambridge, U.K.

Funding: RPF, Cyprus

Validation of Distributed Collaboration for CMP

Funding: Intel Corporation, U.S.A.

Electric Load Forecasting using Neural Networks

Cooperating Organizations: University of Missouri-Rolla, U.S.A.; Cyprus

Energy Regulatory Authority. Funding: RPF, Cyprus

Decentralized Adaptive Control of Distributed Systems Using Neural Networks

Cooperating Organizations: University of Trieste, Italy; Hyperion

Systems Engineering Ltd., Cyprus. Funding: RPF, Cyprus

Health Monitoring of the Operation of Drinking Water Distribution Systems Using Sensor Networks

Cooperating Organizations: Department of Water Works, Cyprus;

Aristotle University of Thessaloniki, Greece. Funding: RPF, Cyprus

Intelligent Operational Control and Security in Drinking Water Distribution Networks

Cooperating Organizations: Department of Water Works, Cyprus;

University of Cincinnati, U.S.A.; Limassol Water Board, Cyprus; Aristotle

University of Thessaloniki, Greece. Funding: RPF, Cyprus

Distributed Intelligent Fault Diagnosis of Large-Scale Networked Systems

Cooperating Organization: University of Trieste, Italy.

Funding: RPF, Cyprus

Fault Diagnosis in Stochastic Dynamical Systems with Censorship, Involving Neural Models

Cooperating Organization: Universidad Politécnica de Madrid, Spain.

Funding: Ministry of Science and Technology of Spain (MSTS)

Robust Information Transmission and Control Subject to Uncertainty and Power Constraints. Funding: RPF, Cyprus

Development of Cross-Layer Algorithm for Optimization of Power Consumption in Wireless Networks via Directed Antennas

Cooperating Organization: University of Thessaly, Greece.

Funding: RPF, Cyprus

Environmental Monitoring Using Sensor Networks

Cooperating Organizations: University of Athens, Greece; Department of Water Works, Cyprus. Funding: RPF, Cyprus

Environmental Monitoring Using Sensor Networks with Mobile and Stationary Nodes

Cooperating Organizations: National Technical University of Athens, Greece; Department of Water Works, Cyprus. Funding: RPF, Cyprus

Localization for next generation wireless communication networks**Wireless Sensor Network Laboratory**

Cooperating Organizations: Imperial College, U.K.; Research and Education Society in Information Technologies, Greece.
Funding: RPF, Cyprus

Quality Control System for SPA Centers

Cooperating Organization: Imperial College, U.K. Funding: RPF, Cyprus

High Frequency Ultrasound Spectral Imaging of Congenital Multiple and Large Nevi

Cooperating Organization: Makarios Hospital, Cyprus.
Funding: RPF, Cyprus

Diagnosis of Urinary Tract Infections using Surface Enhanced Raman Spectroscopy from bioactivated nano-surfaces

Cooperating Organization: Limassol Medical Center, Cyprus.
Funding: RPF, Cyprus

■ PATENTS

J. Bissler, M. Polycarpou, N. Hemsilpin and Efrain Morales, Hemofiltration System, European Patent 04078443.1-2318, March 23, 2005

A. Pesce, M. Polycarpou, Z. Wang, G. Dimeski and P. Hickman, Methods and Apparatus for Detecting Artifactual Output from a Chemical Analyzer, U.S. Patent 6,925,391, August 2, 2005

PUBLICATIONS

■ BOOKS**Authorship**

J. Farrell and M. Polycarpou, *Adaptive Approximation Based Control: Unifying Neural, Fuzzy and Traditional Adaptive Approximation Approaches*, J. Wiley, Hoboken, NJ, 2006

■ CHAPTERS IN BOOKS

E. Kyriakides and M. Polycarpou, Short Term Electric Load Forecasting, A Tutorial, *Trends in Neural Computation*, Ke Chen and Lipo Wang (Eds), Springer-Verlag, Berlin, 391-418, 2007

■ SELECTED JOURNAL PUBLICATIONS

- E. Franco, T. Parisini and M. Polycarpou, Design and Stability Analysis of Cooperative Receding-Horizon Control of Linear Discrete-Time Agents, *International Journal of Robust and Nonlinear Control*, Vol. 17, 982-1001, 2007
- Y. Yang, M. Polycarpou and A. Minai, Multi-UAV Cooperative Search Using an Opportunistic Learning Method, *ASME Journal of Dynamic Systems, Measurement and Control*, Vol. 129, No. 5, 715-728, 2007
- Z. Wang, M. Polycarpou, J. Uber, "...", Adaptive Control of Water Quality in Water Distribution Networks, *IEEE Transactions on Control Systems Technology*, Vol. 14, No. 1, 149-156, 2006
- Y. Jin, et al., Balancing Search and Target Response in Cooperative Unmanned Aerial Vehicle (UAV) Teams, *IEEE Transactions on Systems, Man and Cybernetics: B*, Vol. 36, No. 3, 571-587, 2006
- X. Zhang, T. Parisini and M. Polycarpou, Sensor Bias Fault Isolation in a Class of Nonlinear Systems, *IEEE Transactions on Automatic Control*, Vol. 50, No. 3, 370-376, 2005
- J. Farrell, M. Sharma and M. Polycarpou, On-line Approximation Based Control for Fixed-Wing Aircraft, *AIAA Journal of Guidance, Control and Dynamics*, Vol. 28, No. 6, 1089-1102, 2005

■ SELECTED CONFERENCE PROCEEDINGS

- D. Eliades and M. Polycarpou, Multi-Objective Optimization Of Water Quality Sensor Placement In Drinking Water Distribution Networks, *Proceedings of the European Control Conference 2007*, 1626-1633, 2007
- R. Selmic, M. Polycarpou and T. Parisini, Actuator Fault Detection in Nonlinear Uncertain Systems using Neural On-Line Approximation Models, *Proceedings of the 2006 American Control Conference*, 5123-5128, 2006
- Y. Yang, A. Minai and M. Polycarpou, Evidential Map-Building Approaches for Multi-UAV Cooperative Search, *Proceedings of the 2005 American Control Conference*, 116-121, 2005
- E. Franco, T. Parisini and M. Polycarpou, Cooperative Control of Distributed Agents with Nonlinear Dynamics and Delayed Information Exchange: a Stabilizing Receding-Horizon Approach, *Proceedings of the 2005 IEEE Conference on Decision and Control and 2005 European Control Conference*, 2206-2211, 2005

■ DISTINGUISHED PUBLICATIONS (before 2005)

- M. Polycarpou, Stable Adaptive Neural Control Scheme for Nonlinear Systems, *IEEE Transactions on Automatic Control*, Vol. 41, No. 3, 447-451, 1996
- X. Zhang, T. Parisini and M. Polycarpou, A Unified Methodology for Fault Diagnosis and Accommodation for a Class of Nonlinear Uncertain Systems, *IEEE Transactions on Automatic Control*, Vol. 49, No. 8, 1259-1274, 2004
- E. Morales, M. Polycarpou, N. Hemasilpin, "...", Adaptive Control of Peristaltic Pumps During Continuous Venovenous Hemofiltration, *Proceedings of the 1999 IEEE Conference on Control Applications*, 1306-1311, 1999

THEOCHARIS THEOCHARIDES Lecturer
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■ **STUDIES**

Pennsylvania State University, U.S.A., B.Sc. Computer Engineering (Minor in Mathematics), 2002

Pennsylvania State University, U.S.A., Ph.D. in Computer Science and Engineering, 2005

■ **PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS**

Institute of Electronics and Electrical Engineers (IEEE) • Association of Computer Machinery (ACM)

■ **RESEARCH INTERESTS**

High-Performance, Reliable and Energy Efficient Systems-on-Chip and Embedded Systems Design; Hardware Implementations of Multimedia, Artificial Intelligence, Signal Processing and Machine Vision Algorithms and Applications; Computer Arithmetic, Low-Power VLSI Design, Microprocessor Architectures, Interconnection Networks

■ **EXTERNAL RESEARCH PROGRAMMES (2005-2007)**

System Level Validation of Chip Multiprocessors
Funding: Intel Corporation, U.S.A.

PUBLICATIONS

■ **CHAPTERS IN BOOKS**

T. Theocharides, et. al., An Exploration of Hardware Architectures for Face Detection, *VLSI Handbook of Signal Processing*, McGraw Hill, 83.1 – 83.27, 2006

T. Theocharides, et. al., Networks on Chip: Interconnects for Next Generation Systems on Chip, *Advances in Computers*, Vol. 63, Kluwer-Elsevier Publishing, Netherlands, 35-89, 2005

■ **SELECTED JOURNAL PUBLICATIONS**

S. Murali, T. Theocharides, L. Benini, "...", Analysis of Error Recovery Schemes for Networks on Chip, *IEEE Design and Test of Computers*, Special Issue on Networks on Chips, Vol. 22, Issue 5, 434-442, 2005

■ **SELECTED CONFERENCE PROCEEDINGS**

T. Theocharides, N. Vijaykrishnan and M. J. Irwin, A Parallel Architecture for Hardware Face Detection, *Proceedings of the IEEE Computer Society Annual Symposium on Emerging VLSI Technologies and Architectures*, Volume 00, 452 - 453, 2006

K. Irick, T. Theocharides, N. Vijaykrishnan, "...", Hardware Architectures for Face Detection, *Proceedings of the 40th Asilomar Conference on Signals, Systems and Computers*, Monterey, CA, 433-441, 2006

- T. Theocharides, et al., An Exploration of Hardware Architectures for Face Detection, *VLSI Handbook of Signal Processing*, 83-1 -- 83-35, 2006
- J. M. Kim, D. Park, T. Theocharides, et. al. A Low-Latency Router Supporting Adaptivity for On-Chip Interconnects, *Proceedings of the 42nd Design Automation Conference*, Anaheim, CA, 559-564, 2005
- T. Theocharides, et. al., Implementing LDPC Decoding on a Network-on-Chip, *Proceedings of the International Conference on VLSI Design*, 134-137, 2005
- W. Hung, C. Addo-Quaye, T. Theocharides, "...", Thermal Aware Floorplanning Using Genetic Algorithms, *Proceedings of the International Symposium on Quality of Electronic Design*, 634-639 2005

STAVROS TOUMPIS Lecturer Department of Electrical and Computer Engineering

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■ STUDIES

- National Technical University of Athens, Greece, Diploma in Electrical Engineering, 1997
Stanford University, U.S.A., M.Sc. in Electrical Engineering, 1999
Stanford University, U.S.A., M.Sc. in Mathematics, 2002
Stanford University, U.S.A., Ph.D. in Electrical Engineering, 2003

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

- Institute of Electrical and Electronics Engineers (IEEE), U.S.A. • Association for Computing Machinery (ACM), U.S.A.

■ RESEARCH INTERESTS

- Wireless Communications; Networking Theory; Probability Theory

■ RESEARCH PROGRAMMES (External Funding 2005-2007)

- Netrefound
Cooperating Organizations: Centre of Research and Technology Hellas, Greece; Technical University of Eindhoven, Netherlands; EPFL, Switzerland; Fraunhofer German Sino Lab for Mobile Communications, Germany; VTT Finland, Finland. Funding: FP6-IST, E.U.
NEWCOM network of excellence
Cooperation with over 40 partners from the E.U.. Funding: FP6-IST, E.U.

PUBLICATIONS

■ BOOKS

Editing

- S. Toumpis (Guest Editor), *Novel Techniques for Analysis and Design of Cross-Layer Optimized Wireless Sensor Networks*, Special Issue of EURASIP Journal on Wireless Communications and Networks, 2007
<http://www.hindawi.com/journals/wcn/volume-2007/si.4.html>

■ SELECTED JOURNAL PUBLICATIONS

- S. Toumpis and A. J. Goldsmith, New Media Access Protocols for Wireless Networks Based on Cross-Layer Principles, *IEEE Trans. on Wireless Commun.*, 2228-2241, 2006
- G. A. Gupta and S. Toumpis, Power Allocation over Parallel Gaussian Multiple Access and Broadcast Channels, *IEEE Trans. on Inform. Theory*, Vol. 52, No. 7, 3274-3282, 2006
- S. Toumpis, L. Tassiulas, Optimal Deployment of Large Wireless Sensor Networks, *IEEE Trans. on Inform. Theory*, Vol. 52, No. 7, 2935-2953, 2006


■ SELECTED CONFERENCE PROCEEDINGS

- R. Catanuto, S. Toumpis and G. Morabito, Opti{c,m}al: Optical/Optimal Routing in Massively Dense Wireless Networks, *Proceedings Infocom 2007*, Anchorage, AL, 2007 <http://www.eng.ucy.ac.cy/toumpis/publications/infocom07.pdf>
- S. Toumpis, Optimal Design and Operation of Massively Dense Wireless Networks (or How to Solve 21st Century Problems using 19th Century Mathematics), *Proceedings Inter-Perf 2006*, Pisa, Italy, 2006, <http://portal.acm.org/citation.cfm?id=1190334>
- R. Catanuto, G. Morabito, S. Toumpis, Optical Routing in Massively Dense Networks: Practical Issues and Dynamic Programming Interpretation, *Proceedings 3rd International Symposium on Wireless Communication Systems*, Valencia, Spain, 83-87, 2006
- S. Toumpis and G. A. Gupta, Optimal Placement of Nodes in Large Sensor Networks under a General Physical Layer Model, *Proceedings IEEE SECON 2005*, 275-283, Santa Clara, CA, 2005
- G. A. Gupta, S. Toumpis, J. Sayir, "...", Transport Capacity of Gaussian Multiple Access and Broadcast Channels with a Large Number of Nodes, *Proceedings IEEE ISIT*, Adelaide, Australia, 1338-1342, 2005
- G. Gupta, S. Toumpis, R. Mueller, "...", On the Transport Capacity of Gaussian Multiple Access and Broadcast Channels, *Proceedings IEEE WiOpt. 2005*, Riva del Garda, Italy, 10-20, 2005
- S. Toumpis and L. Tassiulas, Packetostatics: Deployment of Massively Dense Sensor Networks as an Electrostatics Problem, *IEEE INFOCOM*, 2290-2301, 2005

■ DISTINGUISHED PUBLICATIONS (before 2005)

- S. Toumpis and A. J. Goldsmith, Capacity Regions for Wireless Ad Hoc Networks, *IEEE Transactions on Wireless Communications*, IEEE, Vol. 2 No. 4, 736-748, 2003
- S. Toumpis and A. J. Goldsmith, Large Wireless Networks under Fading, Mobility, and Delay Constraints, *IEEE INFOCOM*, Hong Kong, China, 609-619, 2004
- S. Toumpis, Capacity Bounds for Three Classes of Wireless Networks: Asymmetric, Cluster, and Hybrid, *ACM Mobihoc*, Tokyo, Japan, 1369-1378, 2004

FACULTY OF ENGINEERING
**DEPARTMENT OF MECHANICAL
AND MANUFACTURING ENGINEERING**



ACADEMIC STAFF

ANDREAS ALEXANDROU
Professor

MICHALIS AVERKIOU
Assistant Professor

THEODORA KRASIA-CHRISTOFOROU
Lecturer

CHRISTAKIS CONSTANTINIDES
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Professor

IOANNIS GIAPINTZAKIS
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THEODORA KYRATSI
Assistant Professor

LOUCAS S. LOUCA
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CLAUS G. REBHOLZ
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Lecturer

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING

During the period 2005-2007, the Department of Mechanical and Manufacturing Engineering grew in all aspects. The numbers of admitted students, both at the undergraduate and graduate level, increased to 45 and 16 students per year, respectively. In May of 2006, the first M.Sc. student and in May of 2007, the first undergraduate students (11 in total) received their degrees in Mechanical Engineering. Based on the experience gained from the first four years of our operation both the undergraduate and graduate level curricula were upgraded by the addition of new courses as well as by the merging of existing ones. The curricula were modified to contain both traditional Mechanical Engineering courses, as well as courses that introduce students to state-of-the-art subjects such as micro- and nano-technology, renewable energy sources and systems and biomedical engineering. To this end, a well-equipped Micro-/Nano-Technology Laboratory was built with funding from the University and external sources, and it is used both for educational and research purposes. Five new faculty members joined the Department, increasing the total number to 12, and as a result, the Department became autonomous in 2005. Among the new faculty members, two specialize in the area of Biomedical Engineering, two in Materials Science and Engineering, and one in Photovoltaic Devices and Nanotechnology. The Department was very successful in attracting research funding both from the European Commission and local sources, such as the Cyprus Research Promotion Foundation (RPF). Members of the Department were awarded two Marie Curie Chairs of Excellence, one Marie Curie Excellence Team, and one Marie Curie Transfer of Knowledge. Five new research laboratories were set up in the Latsia Campus at the end of 2007, mainly by the new faculty members. The main research areas of the department are: Computational Mechanics (including Thermo-Fluids and Semi-Solid Metals Processing), Nanomanufacturing and Thermal Processing, Biomedical Engineering (including Imaging Techniques (Ultra Sound and MRI), Cardiac Mechanics, Tissue Engineering Scaffolds, and Haptics), Vibrations, System Dynamics and Materials Science and Engineering (including super-hard coatings, powder processing techniques, polymers, (nano)composites, thermoelectrics, magnetic materials, semiconductor nanowires for photovoltaic devices, thin film deposition by CVD and sputtering and laser ablation).

../..

The Department, through the projects in which its members were involved, established research collaborations with several highly recognized organizations including, Philips Medical Systems, U.S.A.; University of Leuven, Belgium; Leibniz Institute for Solid State and Materials Research, Dresden; University of Groningen, Holland; ETH, Zurich; Stanford University, U.S.A.; University of Cambridge, U.K.; University of Illinois at Urbana-Champaign, U.S.A.; Robert Bosch GmbH, Stuttgart; RWTH, Aachen; Massachusetts Institute of Technology; University of Oxford and SUNY-Stony Brook, Northeastern University.

Ioannis Giapintzakis
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ANDREAS ALEXANDROU Professor
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■ **STUDIES**

American University of Beirut, Beirut, B.Sc. in Mechanical Engineering, 1982
University of Michigan, U.S.A., M.Sc. in Mechanical Engineering, 1983
University of Michigan, U.S.A., M.Sc. in Civil Engineering, 1985
University of Michigan, U.S.A., Ph.D. in Mechanical Engineering, 1986

■ **PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS**

Hellenic Society of Rheology (President) • Society Rheology, U.S.A. •
International Committee on Processing of Alloys and Composites

■ **RESEARCH INTERESTS**

Materials Processing and Manufacturing; Semisolid Metals Processing;
Fiber Reinforced Composites; Microgravity Fluid Mechanics; Finite Element
Methods; Free and Moving Boundary Problems

■ **RESEARCH PROGRAMMES (External Funding 2005-2007)**

Thixosteel
Funding: COST Action 541, E.U.

PUBLICATIONS

■ **SELECTED JOURNAL PUBLICATIONS**

E. Taliadorou, G. Georgiou and A.N. Alexandrou, A two-dimensional numerical study of the stick-slip extrusion instability, *J. Non-Newtonian Fluid Mechanics*, 146, 30-44, 2007
A.N. Alexandrou and Mitsoulis, Transient Planar Squeeze Flow of Semi-concentrated Suspensions, On the early breakdown of semisolid suspensions, *J. Non-Newtonian Fluid Mechanics*, 146, 114-124, 2007
G. C. Florides, A. N. Alexandrou and G. Georgiou, Flow development in compression of a finite amount of a Herchel-Bulkley fluid, *J. Non-Newtonian Fluid Mechanics*, 143, 38-47, 2007
A.N. Alexandrou and G. Georgiou, On the early breakdown of semisolid suspensions, *J. Non-Newtonian Fluid Mechanics*, 142, 199-206, 2007
A. N. Alexandrou, et al., Parameter estimation for semi-solid alloys using transient experiments, *Sol. St. Phen.*, 116-117, 429-432, 2006

■ **SELECTED CONFERENCE PROCEEDINGS**

A. Alexandrou, G. Georgiou and D. Apelian, Parameter estimation for thixotropic semisolid slurries, *S2P 2006: 9th International Conference on Semi-Solid Processing of Alloys and Composites*, Korea, 429-432, 2006
A. Alexandrou, G. Georgiou and Philippe Le Menn, On the Reliability of the Semisolid Process: Effects of the Yield Stress, *Proceedings of the 2nd International Light Metals Technology Conference 2005*, Helmut Kaufmann, St. Wolfgang (Ed.), Austria, 179-186, 2005

A. Alexandrou and G. Georgiou, Flow of Herschel-Bulkley materials in a simple cavity: effects of the yield stress, *Visco-plastic Fluids, from Theory to Application*, PIMS, Banff International Research Station, Banff, Alberta, Canada, 2005

http://www.birs.ca/birspages.php?task=displayevent&event_id=05w5028

G. Georgiou and G. Alexandrou, A two-dimensional numerical study of the effect of the reservoir region on the stick-slip extrusion instability, *AERC 2005: 2nd Annual European Rheology Conference*, Grenoble, 2005

<http://www.rheology-esr.org/AERC/2005/>

A. Alexandrou, G. Georgiou and G. Florides, Compression of Materials with Yield Stress, *5th GRACM, International Conference on Computational Mechanics*, Limassol, Cyprus, 2005, <http://www.ucy.ac.cy/~gracm05/>

MICHALIS AVERKIOU Assistant Professor Department of Mechanical and Manufacturing Engineering

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■ STUDIES

University of Texas at Austin, U.S.A., B.S. in Mechanical Engineering, 1987
University of Texas at Austin, U.S.A., M.S. in Mechanical Engineering, 1989
University of Texas at Austin, U.S.A., Ph.D. in Mechanical Engineering, 1994

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

Acoustical Society of America, U.S.A. (Biomedical Ultrasounds Technical Committee Member) • IEEE Ultrasound Ferroelectrics and Frequency Control, U.S.A.

■ EDITORIAL BOARDS

International Journal of Medical Engineering and Informatics (IJMEF), Inderscience Publishers, U.K.

■ RESEARCH INTERESTS

Diagnostic Ultrasound and Contrast Agents; Tumor Angiogenesis Imaging and Quantification; Therapeutic Application of Ultrasound; Drug Targeted Delivery / Molecular Imaging; Nonlinear Imaging in Ultrasound

■ RESEARCH PROGRAMMES (External Funding 2005-2007)

TUMOURANGIO, New technologies for imaging and quantification of tumour angiogenesis

Funding: Marie Curie Chair of Excellence, E.U.

VASORUM, Imaging and quantification of the perfusion of atherosclerotic carotid

Funding: RPF, Cyprus

MRC/UK – MICROPERFUSION, Angiogenesis of corpus luteum (ovary)

Funding: Medical Research Council, U.K.

SONODRUGS, Image-Controlled Ultrasound-Induced Drug Delivery
Funding: FP7, E.U.

Research on tumor angiogenesis monitoring
Funding: Philips Medical Systems

■ PATENTS

- J. E. Powers, M. A. Averkiou, M. Bruce, D. M. Skyba, Ultrasonic diagnostic imaging system with dynamic microbeamforming, EP1216473 B1, March 7, 2007
- M. Bruce, J. E. Powers, R. Garg, D. Skyba, M. Averkiou, Ultrasonic diagnostic imaging system and method for detecting lesions of the liver, EP1855596 A2, November 21, 2007
- C. Hall, D. Savery, S. Sokka, C. T. Chin, M. Averkiou, Method and apparatus for the visualization of the focus generated using focused ultrasound, WO2006087649 A1, August 24, 2006
- J. E. Powers, M. A. Averkiou, M. Bruce, D. M. Skyba, R. R. Entekin, J. D. Fraser, C. R. Cooley, B. S. Robinson, D. N. Roundhill, G. A. Schwartz and P. R. Pesque, Ultrasonic diagnostic imaging system transducer array with multiline patches, European Patent Specification, EP 1242991B1, December 14, 2005

PUBLICATIONS

■ SELECTED JOURNAL PUBLICATIONS

M. Averkiou and J. Powers, Ultrasound contrast media in the characterization of soft tissue lesions: ongoing research, *MEDICAMUNDI*, 51/2+3, 80-94, 2007

V. A. Khokhlova, A. E. Ponomarev, M. A. Averkiou, "...", Nonlinear pulsed ultrasound beams radiated by rectangular focused diagnostic transducers, *Ac. Physics* 52(4), 560-570, 2006

■ SELECTED CONFERENCE PROCEEDINGS

M. Averkiou, et al., Challenges of quantitative tumor response imaging with microbubble, *12th European Symposium on Ultrasound Contrast Imaging*, Rotterdam, The Netherlands, 32-34, 2007

M. Averkiou, et al., Current Ultrasound Contrast Imaging Methods and the Future Ahead, *11th European Symposium on Ultrasound Contrast Imaging*, Rotterdam, The Netherlands, 67-68, 2006

T. Brock-Fisher, M. A. Averkiou, M. Bruce, "...", Pulsing schemes for high MI contrast imaging, *10th European Symposium on Ultrasound Contrast Imaging*, Rotterdam, The Netherlands, 81, 2005

■ DISTINGUISHED PUBLICATIONS (before 2005)

M. A. Averkiou, D. N. Roundhill and J. E. Powers, A new imaging technique based on the nonlinear properties of tissues, *Proceedings of the 1997 IEEE Ultrasonics Symposium*, Toronto, Canada, Vol. 2, 1561-1566, 1997

P.N. Burns, D. Hope Simpson and M. A. Averkiou, Nonlinear imaging, *Ultrasound in Med. And Biol*, 26(1), S19-S22, 2000

M.A. Averkiou, Y.S. Lee and M.F. Hamilton, Self demodulation of amplitude and frequency modulated pulses in a viscous fluid, *J. Acoust. Soc. Am*, 94, 2876-2883, 1993

THEODORA KRASIA-CHRISTOFOROU Lecturer
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■ **STUDIES**

University of Cyprus, Cyprus, B.Sc. in Chemistry, 1999
Imperial College of Science, Technology and Medicine, University of London, U.K., M.Sc. in Chemical Research, 2000
Max-Planck Institute of Colloids and Interfaces, University of Potsdam, Germany, Ph.D. in Physical Chemistry, 2003

■ **PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS**

American Chemical Society, U.S.A. • Pancyprian Union of Chemists, Cyprus

■ **RESEARCH INTERESTS**

Polymer Synthesis and Characterization; Organic-Inorganic Hybrid Materials; Polymer Colloids; Composite Materials; Biomaterials

■ **RESEARCH PROGRAMMES (External Funding 2005-2007)**

Analysis and design of polymer nanocomposite materials
Cooperating Organization: Upperstage Engineering, Katholieke Universiteit Leuven, Belgium. Funding: RPF, Cyprus
Block copolymers as stabilizers for magnetic nanoparticles: Synthesis and characterization
Cooperating Organization: Romanian Academy, Timisoara Branch, University Polytechnica Timisoara, Romania. Funding: RPF, Cyprus

PUBLICATIONS

■ **CHAPTERS IN BOOKS**

Krasia, T., Schlaad, H., Poly[2-(acetoacetoxy)ethyl methacrylate]-based hybrid micelles, G.R. Newkome, I. Manners (Eds), *Metal Containing and Metallo-supramolecular Polymers and Materials*, ACS Symposium Series Book, Washington, U.S.A., Vol. 928, 157-167, 2006

■ **SELECTED JOURNAL PUBLICATIONS**

Achilleos, M., Krasia-Christoforou, T., Patrickios, C. S., Amphiphilic model Co-Networks Based on Combinations of Methacrylate, Acrylate and Styrenic Units: Synthesis by RAFT Radical Polymerization and Characterization of the Swelling Behavior, *Macromolecules, American Chemical Society, U.S.A.*, 40, 5575-5581, 2007

Krasia, T., Patrickios, C. S., Amphiphilic polymethacrylate model conetworks: Synthesis by RAFT radical polymerization and characterisation of the swelling behavior, *Macromolecules, American Chemical Society, U.S.A.*, 39, 2467-2473, 2006

■ SELECTED CONFERENCE PROCEEDINGS

Triftaridou A. I., et al., Three different types of quasi-model networks: Synthesis by Group Transfer Polymerization and Characterization, *Polymer Bulletin, Springer Berlin/Heidelberg, Germany*, 58, 185-190, 2007

Krasia, T. and Patrickios, C. S., Polymeric amphiphilic model networks: Synthesis by controlled radical polymerization, investigation of their swelling behavior and their evaluation as systems for controlled drug-release, *Proceedings of the XXI Panhellenic Conference of Solid State Physics and Material Science, Athens*, 69-71, 2007 (in Greek)

Krasia, T.C. and Patrickios, C. S., Polymethacrylate amphiphilic model conetworks: Synthesis by RAFT controlled radical polymerization and characterization of the swelling behaviour, *Proceedings of the International Symposium on Polymer Conetworks, Gels and Membranes, Science, Technology and Applications, Budapest, Hungary*, 29-32, 2005

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■ STUDIES

Imperial College of Science, Technology and Medicine, University of London, U.K., B.Eng. in Electrical and Electronic Engineering, 1992

Johns Hopkins University, M.S.E. in Biomedical Engineering, 1994

Johns Hopkins University, Ph.D. in Biomedical Engineering, 2000

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

International Society of Magnetic Resonance in Medicine, U.S.A. •

American Heart Association (AHA), U.S.A. • Society of Cardiovascular

Magnetic Resonance (SCMR), U.S.A. • ΤΒΠ Engineering Honor Society

■ RESEARCH INTERESTS

Cardiac Mechanics and Sarcomeric Force Generation Mechanisms; Novel MRI Diagnostic Micro-Imaging Techniques; Cellular Tracking Methods; Tissue Structure Modelling and Simulations; Hardware Design and Non-Linear Reconstruction Algorithms

■ RESEARCH PROGRAMMES (External Funding 2005-2007)

Development of Research Infrastructure, Quality Assurance Protocols, and Analysis Techniques for Diagnostic Radiological Equipment (Scientific Director)

Cooperating Organization: Medical Physics. Funding: RPF, Cyprus

Cardiac Mechanics and Non-invasive Imaging in the Mouse Heart using
Magnetic Resonance Imaging
Funding: Hellenic Bank, Cyprus

PUBLICATIONS

■ SELECTED CONFERENCE PROCEEDINGS

Constantinou C., et al., Semi-Automated Quality Assurance Toolbox for Diagnostic Radiological Imaging, *International Conference on Enterprise Information Systems (ICEIS)*, Paphos, Cyprus, ICEIS 2006(2):216-221, 2006

■ DISTINGUISHED PUBLICATIONS (before 2005)

Constantinides C.D., et al., Noninvasive Quantification of Total Sodium Concentration in Acute Reperfused Myocardial Infraction, *Magnetic Resonance in Medicine*, 46(6):1144-1151, 2001

Constantinides C.D., Atalar E, McVeigh E.R., Signal-to-Noise Measurements in Magnitude Images from NMR Phased Arrays, *Magnetic Resonance in Medicine*, 38: 852-857, 1997

Constantinides C.D., et al., A Phased Array Coil for Human Cardiac Imaging, *Magnetic Resonance in Medicine*, 34: 92-97, 1995

CHARALABOS DOUMANIDIS Professor Department of Mechanical and Manufacturing Engineering

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■ STUDIES

Aristotle University of Thessaloniki, Greece, Diploma in Mechanical Engineering, 1983

Northwestern University, Evanston, Illinois, U.S.A., M.Sc. in Mechanical Engineering, 1985

Massachusetts Institute of Technology, Cambridge, U.S.A., Ph.D. in Mechanical Engineering, 1988

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

American Association for the Advancement of Science (AAAS) • American Society for Materials (ASM) • American Society of Mechanical Engineers (ASME) • American Welding Society (AWS) • International Association of Science and Technology for Development (IASTED) • MIT Alumni Association (MITAA) • New York Academy of Sciences (NYAS) • ΠΤΣ Mechanical Engineering Honor Society, U.S.A. • Samuel G. Howe Hellenic Tufts Faculty Association • Society of Manufacturing Engineers (SME) • Technical Chamber of Greece (TEE)

■ EDITORIAL BOARDS

Computer-Aided Design (CAD) Journal-Nano/Micro Technologies Applications in CAD/CAM/CAE (Guest Editor), Elsevier

Journal of Nanoengineering and Nanosystems, IMechE (Associate Editor)

International Journal of Modelling and Simulation, IASTED (Associate Editor)

■ RESEARCH INTERESTS

Nanomanufacturing; Thermal Processing; Material Deposition and Joining Processes; Rapid Prototyping; Rapid Thermal Processing and Laser Annealing of Semiconductors; Distributed Parameter System Modelling and Control; Robotics and Mechatronics; Biomedical Instrumentation

■ RESEARCH PROGRAMMES (External Funding 2005-2007)

Tissue Engineering Scaffolds by Rapid Prototyping and Nanofiber Electrospinning (NanoSpin) (co-Principal Investigator)

Cooperation between Greece and Cyprus. Funding: INTERREG IIA, E.U.

Direct Ultraprecision Manufacturing (ManuDirect) (Co-Principal Investigator)

Funding: FP6 Integrated Projects, E.U.

Heat Sources by Reactive Thin Films (NanoHeaters) (Co-Principal Investigator)

Funding: FP6 Marie Curie Excellence Team Award, E.U.

Nanocomposite Materials Manufacturing by Ultrasonic Welding (UltraNanoMan) (PI)

Funding: FP6 Marie Curie Excellence Chair Award, E.U.

Industrial Safety of Nanoheaters

Funding: National Science Foundation, U.S.A.

Independent Research and Development as Nanomanufacturing Programme Director at National Science Foundation (Principal Investigator)

Funding: National Science Foundation (Intergovernmental Personnel Act) Grant, U.S.A.

Research Infrastructure for Nanotechnology Sensors in Cyprus (NanoCyprus) (Principal Investigator)

Funding: RPF, Cyprus

MEMS Based Vestibular Implants for Balance Restoration (TMVIBR) (Co-Principal Investigator)

Funding: RPF, Cyprus

Polymer Nanocomposite Materials by Ultrasonics (NanoPlasi) (Principal Investigator)

Funding: RPF, Cyprus

Study of Old Nicosia by St. Antonios Grade School Students (Co-Principal Investigator)

Funding: RPF, Cyprus (MERA)

SGER: Nanoheater Systems for Thermal Nanomanufacturing (Co-Principal Investigator)

Funding: National Science Foundation, U.S.A.

Droplet-Based Processing of Quasicrystalline Magnesium Alloys (Co-Principal Investigator)

Funding: National Science Foundation, U.S.A.

■ PATENTS

Ando, T., Gunduz, I.E., Wong, P.Y., Doumanidis, C., Full-Density Ultrasonic Power Consolidation, Provisional Patent Application NU-739Aq800, Northeastern University, February 2007

Doumanidis, C., Ando, T., Chen, J., Rebholz, C., Nanoheater Elements, Systems and Methods of Use Thereof, Invention Disclosure UML 06-17, University of Massachusetts Lowell, February 2006

Tran, H., Doumanidis, C., Variable Radii Cutter, U.S. Patent No. 6,908,267, June 2005

Ando, T., Doumanidis, C., Process of Forming a Composite Coating on a Substrate, U.S. Patent No. 6,936,118, Northeastern University, August 2005

Ando, T., Gunduz, I.E., Wong, P., Doumanidis, C., Vibratory Powder Consolidation, Invention Disclosure NU-11-05, Northeastern University, November 2005

PUBLICATIONS

■ BOOKS

Editing

Doumanidis, C., Durham, D., *Editorial: Micro-/Nano-Technology Special Issue*, Journal of Computer Aided Design, Elsevier, Vol. 1268, 1-2, 2007

■ SELECTED JOURNAL PUBLICATIONS

M. Kokonou, et al., Fabrication of nanorods by metal evaporation inside the pores of ultra-thin porous alumina templates, *Nanotechnology*, 18, Art. No. 495604, 2007

Kyprianou, A., et al., Stochastic Control of Nanoparticle Manipulation Using Electric Fields, *Int. J. of Nanomanufacturing*, Vol. 1, No. 6, 751-761, 2007

Alaeddine, M., et al., Thermal Modeling and Control in Production of Intermetallic Coatings from Layered Precursors, *Trans. ASME J. of Dynamic Systems, Measurement and Control*, Vol. 129, 56-65, 2007

Constandinou, T.G., Georgiou, J., Doumanidis, C., Towards and Implantable Vestibular Prosthesis: The Surgical Challenges, *IEEE Trans. On Biomedical Engineering*, Vol. XX, 1-8, 2007

Alaeddine, M., et al., Modeling the Intermetallic Coating Growth During Reactive Thermal Processing of Layered Precursors, *J. of Surface Coatings Technology*, Elsevier, Vol. 200, 5181-5192, 2006

Alaeddine, M., et al., Modeling the Melting and Dissolution Stages During Thermal Processing of Intermetallic Coatings from Layered Precursors, *Trans. ASME, J. Of Manuf. Sci. and Eng.*, Vol. 127, 148-156, 2005

Doumanidis, C., Nanomanufacturing: Technical Advances, Research Challenges, and Future Directions, *IMechE J. of Nanoeng. and Nanosystems*, Vol. 219, Part N, 1-20, 2005

Gunduz, I.E., et al., Enhanced Diffusion and Phase Transformations During Ultrasonic Welding of Zinc and Aluminum, *Elsevier Scripta Materialia*, Vol. 52, 939-943, 2005

Vayena, O., et al., Welding Methods for Production of MMC Coatings using Particulate-Cored Wire Precursors by Welding Methods, *SME Journal of Manufacturing Processes*, Vol. 7, No.2, 1-10, 2005

Yadav S, Doumanidis C, Thermomechanical Analysis of an Ultrasonic Rapid Manufacturing (URM) System, *SME J. Of Manuf. Processes*, Vol. 7, No. 2, 153-161, 2005

IOANNIS GIAPINTZAKIS Associate Professor Department of Mechanical and Manufacturing Engineering

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■ STUDIES

Northern Illinois University, U.S.A., B.Sc. in Physics (Minor in Mathematics), 1985

Northern Illinois University, U.S.A., M.Sc. in Applied Physics, 1987

University of Illinois, Urbana-Champaign, U.S.A., Ph.D. in Materials Science and Engineering, 1992

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

American Physical Society, U.S.A.

■ RESEARCH INTERESTS

Complex Functional Oxides; Thermoelectric and High Thermal Conductivity Materials; Spintronics and Giant Magnetoresistance Materials; Magnetic Carbon Nanostructures; Pulsed Laser Deposition of Thin Films

■ RESEARCH PROGRAMMES (University of Cyprus 2005-2007)

Thermoelectric Nanosensor Networks

■ RESEARCH PROGRAMMES (External Funding 2005-2007)

Carbon Nanofoam

Funding: RPF, Cyprus

Unusual Magnetic-Based Thermal Transport

Funding: RPF, Cyprus

Novel Magnetic-Mode Heat Transport for Thermal Management in Microelectronics

Funding: FP6-IST, E.U.

Novel Magnetic-Mode Heat Transport for Thermal Management in Microelectronics
Cooperating Organizations: Leibniz Institute for Solid State and Materials Research, Dresden, Germany; Université Paris Sud, France; University of Groningen, Holland; Foundation of Research and Technology, Hellas-Greece; Josef Stefan Institute, Slovenia; ASCOMP GmbH, Germany. Funding: FP6-IST, E.U.

PUBLICATIONS

■ SELECTED JOURNAL PUBLICATIONS

- M.L. Paramês, Z. Viskadourakis, J. Giapintzakis, "...", Magnetoresistance of magnetite thin films grown by pulsed laser deposition on GaAs(1 0 0) and Al₂O₃(0 0 0 1), *Applied Surface Science*, 254, 12155-1259, 2007
- M.L. Paramês, et al., Magnetic properties of Fe₃O₄ thin films grown on different substrates by laser ablation, *Applied Surface Science*, 253, 8201-8205, 2007
- S. Gardelis, et al., Magneto-transport properties of NiMnSb thin films on InSb single crystals: Negative giant magnetoresistance, *Phys. Stat. Sol (a)* 204, 92-98, 2007
- M.L. Paramês, et al., PLD of Fe₃O₄ thin films: Influence of background gas on surface morphology and magnetic properties, *Applied Surface Science*, 252, 4610-4614, 2006
- S. Gardelis, et al., Negative giant longitudinal magnetoresistance in NiMnSb/InSb: Interface effect, *Phys. Rev.*, B 74, 214427-1 -- 214427-5, 2006
- S. Rai, et al., Surface and interface study of pulsed-laser-deposited off-stoichiometric NiMnSb thin films on a Si(100) substrate, *Phys. Rev.*, B 73, 035417-1 -- 035417-5, 2006
- Y. Miyoshi, et al., Comparison of free surface polarization of NiMnSb and Co₂MnSi, *Appl. Phys. Lett.*, 88, 142512-1 – 142512-3, 2006
- J. Giapintzakis, et al., Influence of the nonmagnetic impurities on the spin-1 Heisenberg chain SrNi₂V₂O₈ system, *Physica Status Solidi (b)* 243, 1366-1374, 2006
- J. Androulakis, S. Gardelis, J. Giapintzakis, "...", Indium oxide: a possible tunnel barrier in spintronic devices, *Thin Solid Films*, 471, 293-297, 2005
- A. V. Rode, et al., Strong paramagnetism and possible ferromagnetism in pure carbon nanofoam produced by laser ablation, *Journal Magnetism Magnetic Materials*, 290-291, 298-301, 2005

STAVROS C. KASSINOS Associate Professor
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■ STUDIES

University of Texas at Austin, U.S.A., B.Sc. in Mechanical Engineering, 1987
Stanford University, U.S.A., M.Sc. in Mechanical Engineering, 1989
Stanford University, U.S.A., Ph.D. in Mechanical Engineering, 1994

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

American Association for the Advancement of Science (AAAS), U.S.A. •
American Institute for Aeronautics and Astronautics (AIAA), U.S.A. •

American Physical Society (DFD division), U.S.A. • Society for Industrial and Applied Mathematics (SIAM), U.S.A • European Physical Society (EPS) • European Aeronautics Science Network (EASN) • European Physical Society (EPS)

■ RESEARCH INTERESTS

Modelling and Simulation of Environmental Flows with Emphasis on Atmospheric Pollution; Nanofluidics and Molecular Dynamics; Biomedical Flows with Emphasis on the Human Respiratory System; Turbulent and MHD Flow; MHD Turbulence and Plasma Flows in Fusion and in the Astrophysical Context

■ RESEARCH PROGRAMMES (University of Cyprus 2005-2007)

Direct Numerical Simulation and Structure-Based Modelling of Atmospheric Aerosol Dispersion

■ RESEARCH PROGRAMMES (External Funding 2005-2007)

MYPLANET: Massively Parallel Computations of Combustion and Emission Simulations

Cooperation between five European universities, four private companies and one research organization. Funding: E.U.

Aerosols: Dispersion, Transport and Consequences

Cooperating Organizations: University of Oslo; Centre-of-Excellence for Biomedical Computing (CBC), Oslo.

Funding: Research Council of Norway

FUTURE-CY, Fusion Transnational Unit for Research in Cyprus.

Funding: European Commission

Transfer of knowledge for the creation of a multidisciplinary core of excellence in the computational sciences at the University of Cyprus

Cooperating Organizations: Department of Computer Science, University of Cyprus; ETHZ, Switzerland; Stanford University, U.S.A.

Funding: UCY-CompSc, E.U.

SBM-EuroFlows Application of structure-based modeling to technological and environmental flows of European interest

Funding: E.U.

European synergy for the assessment of wall turbulence

Cooperation between seven European universities, six research centres/laboratories and two private companies. Funding: E.U.

PUBLICATIONS

■ BOOKS

Editing

Kassinis, S.C., et al., *Complex Effects in Large Eddy Simulations*, Springer Lecture Notes in Computational Science and Engineering Series, Vol. 56, 2007

■ SELECTED JOURNAL PUBLICATIONS

- C. Langer, E. Akylas, and S. C. Kassinos, Linear Stability Analysis of Generalized Turbulent Hyperbolic Flow in a Rotating Frame, *Physics of Fluids* 19(12), 128106, DOI:10.1063/1.2821911, 2007
- I. E. Sarris, S. C. Kassinos, and D. Carati, Large-eddy simulations of the turbulent Hartmann flows close to the transitional regime, *Physics of Fluids* 19(8), 085109, DOI:10.1063/1.2757710, 2007
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■ STUDIES

- University of Sheffield, U.K., B. Eng. in Mechanical and Process Engineering, 1996
- University of Oxford, U.K., M.Sc. in Mathematics and the Foundations of Computer Science, 2000
- University of Sheffield, U.K., Ph.D. in Mechanical Engineering, 1999

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

- Society of Industrial and Applied Mathematics, U.S.A. • Cyprus Scientific and Technical Chamber (ETEK), Cyprus

■ RESEARCH INTERESTS

- Linear, Non-Linear and Stochastic Vibrations; Structural Uncertainty and Damage Detection; Nanomechanics and Nanotechnology; Signal Processing and Control

■ RESEARCH PROGRAMMES (University of Cyprus 2005-2007)

Thermoelectric Nanosensor Networks, Liquid Crystal Sensor Design

■ RESEARCH PROGRAMMES (External Funding 2005-2007)

Development of strategy for determining the integrity of cable systems and accessories through on-line partial discharge (PD) condition monitoring (Coordinator)

Cooperating Organizations: Electricity Authority of Cyprus; University of Southampton; University of Cambridge, U.K.; University of Sheffield, U.K.
Funding: RPF, Cyprus

New photovoltaic elements and photovoltaic systems of improved efficiency

Cooperating Organization: Technological Educational Institute of Crete, Greece. Funding: INTERREG, E.U.

Behaviour analysis of pumps in corrosion and their proper preparation and coating for increasing their lifetime

Cooperating Organizations: A & M Pumps and Systems LTD; CNE Technology Ltd; Aristotle University of Thessaloniki, Greece.
Funding: RPF, Cyprus

PUBLICATIONS

■ CHAPTERS IN BOOKS

Charalambous, D. C., Kyprianou, A. and Rezaei, F., Relations between information theory, robustness and statistical mechanics of stochastic uncertain systems via large deviation theory, Gorban, A.N., et al. (Eds), *Model Reduction and Coarse-Graining Approaches for Multiscale Phenomena*, Springer, Berlin, Heidelberg, New York, 245-265, 2006

■ SELECTED JOURNAL PUBLICATIONS

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Mottershead, E. J., Kyprianou, A. and Ouyang, H., Structural Modification Part 1: Estimation of Rotational Frequency Response Functions, *Journal of Sound and Vibration*, Vol. 284, 249-295, 2005

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- Kyprianou, A., Staszewski and Worden, K., Choi-Williams time-frequency analysis of a three degree of freedom non-linear system, *ISMA 2006 Proceedings 12th International Conference on Noise and Vibration Engineering*, Leuven, Belgium, 2683-2871, 2006

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■ **STUDIES**

- Aristotle University of Thessaloniki, Greece, Degree in Physics, 1996
Aristotle University of Thessaloniki, Greece, M.Sc. in Physics of Materials, 1998
Aristotle University of Thessaloniki, Greece, Ph.D. in Physics, 2002

■ **PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS**

- Material Research Society (MRS), U.S.A. • European Powder Metallurgy Association (EPMA) • American Physical Society (APS) • Hellenic Physical Society

■ **RESEARCH INTERESTS**

- Synthesis of Inorganic Materials; Nanomaterials and Nanocomposites; Ball Milling, Consolidation Techniques; Thermoelectric Materials for Power Generation; Materials Science Education

■ **RESEARCH PROGRAMMES (External Funding 2005-2007)**

- Optimized Thermoelectric Materials and Applications (THEMATA) (Principal Investigator)
Funding: RPF, Cyprus
- Research and Education in Nanomaterials and Nanotechnology: Design, Development and Applications - Energy Generation and Storage - Thermoelectrics and Hydrogen Storage (Principal Investigator)
Funding: INTERREG, E.U.
- University-school partnerships for the design and implementation of research-based ICT-enhanced modules on Material Properties (Project Manager)
Funding: FP6 (Science and Society), E.U.

PUBLICATIONS

■ SELECTED JOURNAL PUBLICATIONS

J.B. Wachter, et al., Local structure and influence of bonding on the phase-change behaviour of the chalcogenide compounds $K1-xRbxSb5S8$, *Journal of Solid State Chemistry*, 180, 420–431, 2007

Th. Kyratsi, et al., Structure inhomogeneities, shallow defects, and charge transport in the series of thermoelectric materials $K2Bi8-xSbxSe13$, *J. Appl. Phys.*, 100, 123704, 2006

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■ SELECTED CONFERENCE PROCEEDINGS

N. Toumpas, Th. Kyratsi, E. Hatzikraniotis, "...", Mechanical Alloying Synthesis of $K2Bi8Se13$ – type Solid Solutions, *Mat. Res. Soc. Symp. Proc.*, Vol. 1044, U03-07, 2007

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E. Hatzikraniotis, Th. Kyratsi, T. Zorba, "...", Optical Properties of Thermoelectric Alkali Metal Chalcogenide Compounds $K2Bi8-xSbxSe13$, *Mat. Res. Soc. Symp. Proc.*, Vol. 886, F08-01, 2005

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■ STUDIES

National Technical University of Athens, Greece, Diploma in Mechanical Engineering, 1992

University of Michigan, U.S.A., Master of Science in Engineering in Mechanical Engineering, 1994

University of Michigan, U.S.A., Doctor of Philosophy in Mechanical Engineering, 1998

■ PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS

American Society of Mechanical Engineer (ASME) (Vice-chair of Modelling Identification and Intelligent Systems Technical Committee), U.S.A. • Society of Automotive Engineers (SAE), U.S.A. • Society for Computer Simulation

■ RESEARCH INTERESTS

System Dynamics Modelling; Bond Graph Modelling; Model Reduction of Large Scale Systems; Modelling of Automotive Systems; Haptic Interfaces for Rehabilitation

■ RESEARCH PROGRAMMES (External Funding 2005-2007)

Energy Model Reduction

Funding: Marie Curie Actions, E.U.

PUBLICATIONS

■ SELECTED JOURNAL PUBLICATIONS

Rideout, D.G., J.L. Stein and L.S. Louca, A Systematic Identification of Decoupling in Dynamic System Models. *Journal of Dynamic Systems Measurement and Control*, American Society of Mechanical Engineers, New York, NY, Vol. 129, No. 4, 503–513, 2007

Louca, L.S. and U.B. Yildir, Modeling and Reduction Techniques for Studies of Integrated Hybrid Vehicle Systems, *Journal of Mathematical and Computer Modeling of Dynamic Systems: Special Issue on Bond Graphs*, Taylor and Francis, London, U.K., Vol. 12, No. 2-3, 203–218, 2005

■ SELECTED CONFERENCE PROCEEDINGS

Xydas, G.E. and L.S. Louca, Upper Limb Motion Profile During Small to Medium Time-Limited Reaching Tasks in a VR Based Robotic Training Environment, *Proceedings of the 2007 ASME International Mechanical Engineering Congress and Exposition*, Seattle, WA., 2007, <http://www.asmeconferences.org/congress07>

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Xydas, G.E. and L.S. Louca, Design and Development of a Haptic Peg-Board Exercise for the Rehabilitation of People with Multiple Sclerosis, *Proceedings of the 10th International Conference on Rehabilitation Robotics*, Noordwijk, The Netherlands, Institute of Electrical and Electronics Engineers, Piscataway, NJ, 907-916, 2007

Louca, L.S. and E. Xydas, Model Reduction of Modal Representations, *Proceedings of the 2006 ASME International Mechanical Engineering Congress and Exposition*, Chicago, IL, American Society of Mechanical Engineers, New York, NY, 1065-1072, 2006

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Kang, Dongsoo, et al., Implementing the Milliken Moment Method using Controlled Dynamic Simulation, *SAE 2005 World Congress*, Detroit, MI, SAE, Paper 2005-01-0417, 2005

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■ **STUDIES**

University of Applied Sciences, Furtwangen, Germany, B.Sc. in Materials and Surface Engineering, 1993

University of Hull, U.K., M.Sc. in Surface Engineering, 1995

University of Hull, U.K., Ph.D. in Surface Engineering and Materials Science, 2000

■ **RESEARCH INTERESTS**

Thin Films and Coatings; Surface Engineering Technologies; Laser Materials Processing; Nanotechnology; Nanoscale Manufacturing Technologies

■ **RESEARCH PROGRAMMES (External Funding 2005-2007)**

Nano-Heater Systems for Thermal Nanomanufacturing (NanoHeaters)
Funding: European Commission

Ti-C Intermediate Layer and Benchmark RF-Plasma DLC Coating Process Development

Funding: Robert Bosch GmbH, Stuttgart, Germany

CrAl (Si,Y,B)N Coatings for High Temperature Tribological Applications
Funding: University of Surrey, U.K.

Evaluation of the Properties of Novel Titanium-based PVD Nanostructured Films

Funding: University of Sheffield, U.K.

PUBLICATIONS

■ **SELECTED JOURNAL PUBLICATIONS**

M. Kokonou, C. Rebholz, K.P. Giannakopoulos, "...", Fabrication of nanorods by metal evaporation inside the pores of ultra-thin porous alumina templates, *Nanotechnology* 18, Art. No. 495604, 2007

C. Rebholz, et al., Hard and superhard TiAlBN coatings deposited by twin electron-beam evaporation, *Surface and Coatings Technology* 201, 6078-6083, 2007

C. Rebholz, et al., Correlation of elastic modulus, hardness and density for sputtered TiAlBN thin films, *Thin Solid Films* 514, 81-86, 2006

M.A. Monclus, M.A. Baker, C. Rebholz, "...", Nanostructural studies of PVD TiAlB coatings, *Surface Interface Analysis*, 38, 731-735, 2006

M.C. Joseph, C. Tsotsos, M.A. Baker, "...", Characterisation and tribological evaluating of nitrogen-doped molybdenum/copper PVD metallic nanocomposite films, *Surface and Coatings Technology*, 190, 345-356, 2005

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■ **STUDIES**

University of Surrey, U.K., B.Eng. in Electrical and Electronic Engineering, 1991
UMIST, U.K., M.Sc. in Microelectronic Materials and Devices, 1992
University of Wales, Ph.D. in Semiconductor Physics, 1998

■ **PROFESSIONAL SOCIETIES / INTERNATIONAL ORGANIZATIONS**

Institute of Physics (IoP), U.K. • Institute of Electrical and Electronic Engineers (IEE), U.K. • Chartered Engineer (CEng) • Chartered Physicist (CPhys)

■ **RESEARCH INTERESTS**

Nanotechnology, Semiconductor Nanowires for Third Generation Photovoltaic Devices, Sensors etc.; Investigation of the Electrical and Optical Properties of Semiconductor Nanowires in Conjunction with Theoretical Calculations of their Fundamental Properties; Use of Nanowires as Fundamental Building Blocks for the Fabrication of Novel Devices

PUBLICATIONS

■ **SELECTED JOURNAL PUBLICATIONS**

M. Zervos, et al., InAs quantum dots grown by molecular beam epitaxy on GaAs (211)B polar substrates, *Phys.Stat.Sol (c)* 3, No. 11, 3988-3991, 2006

E. Iliopoulos, M. Zervos, A. Adikimenaki, "...", Properties of Si doped GaN and AlGaN/GaN heterostructures grown by RF MBE on high resistivity Fe doped GaN, *Superlattices and Microstructures*, 40, 313, 2006

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APPENDICES



- ABBREVIATIONS
- ACADEMIC STAFF INDEX



ABBREVIATIONS

CEE	Department of Civil and Environmental Engineering
ARH	Department of Civil and Environmental Engineering (Programme of Studies in Architecture)
ECE	Department of Electrical and Computer Engineering
FP5	5th Framework Programme
FP6	6th Framework Programme
FP7	7th Framework Programme
IST	Information Societies and Technologies
MME	Department of Mechanical and Manufacturing Engineering
RPF	Research Promotion Foundation, Cyprus

ACADEMIC STAFF INDEX

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AVERKIOU MICHALIS, <i>Assistant Professor</i>	Department of Mechanical and Manufacturing Engineering	80
CHAMPIS DIMOS, <i>Lecturer</i>	Department of Civil and Environmental Engineering	13
CHARALAMBOUS D. CHARALAMBOS, <i>Associate Professor</i>	Department of Electrical and Computer Engineering	49
CHRISTODOULOU E. SYMEON, <i>Assistant Professor</i>	Department of Civil and Environmental Engineering	14
CHRISTOFOROU – KRASIA THEODORA, <i>Lecturer</i>	Department of Mechanical and Manufacturing Engineering	82
CONSTANTINIDES CHRISTAKIS, <i>Assistant Professor</i>	Department of Mechanical and Manufacturing Engineering	83
DOUMANIDIS CHARALABOS, <i>Professor</i>	Department of Mechanical and Manufacturing Engineering	84
ELLINAS GEORGIOS, <i>Assistant Professor</i>	Department of Electrical and Computer Engineering	51
GEORGHIOU E. GEORGE, <i>Assistant Professor</i>	Department of Electrical and Computer Engineering	53
GEORGIOU JULIUS, <i>Lecturer</i>	Department of Electrical and Computer Engineering	55
GIAPINTZAKIS IOANNIS, <i>Associate Professor</i>	Department of Mechanical and Manufacturing Engineering	87
HADJICHRISTOS A. CHRISTOS, <i>Assistant Professor</i>	Programme of Architecture	37
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KYPRIANOU ANDREAS, <i>Assistant Professor</i>	Department of Mechanical and Manufacturing Engineering	90
KYRATSI THEODORA, <i>Lecturer</i>	Department of Mechanical and Manufacturing Engineering	92
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