

CURRICULUM VITAE (YANNIS F. MISSIRLIS)

Name : Yannis F. Missirlis
Birthdate : November 13, 1946
Birth Place : Karlovassi, Samos, Greece
Nationality : Greek and Canadian

Education

Diploma in Chemical Engineering, July 1969

National Technical University of Athens, Greece

M. Sc., in Chemical Engineering, June 1971, Syracuse University.

Thesis: "Direct Contact Heat Transfer Between two Immiscible Liquids".

Ph. D., in Chemical Engineering, December 1973,

Rice University.

Thesis: "In-Vitro Studies of Human Aortic Valve Mechanics".

Professional Experience

Sep.2013 - : Active Research Professor, University of Patras
Dec. 1980-August 2013 : Professor, University of Patras.
July 1979-Dec. 1980 : Associate Professor of Engineering Physics, McMaster University.
Jan. 1974-June 1979 : Assistant Professor of Engineering Physics, McMaster University.
Jan. 1974-June 1981 : Associate Member of the Department of Medicine, McMaster University.
: Associate Member of the Department of Medical Sciences, McMaster University.
1973 : Research Associate, Department of Surgery, Baylor College of Medicine.

Academic Administrative Experience

March 1986-Aug. 1988 : 1) Vice-Rector for Academic Affairs and Personell, University of Patras.

2) Chairman, Research Council of University of Patras.

Sept. 1986-June 1987 : Chairman, Department of Pedagogics.

Sept. 1984-Aug. 1986 : Chairman, Department of Mechanical Engineering.

Sept. 1994-Aug. 1996 : Director, Applied Mechanics Section, Dept. of Mechanical Engineering.

Sept. 2001-Aug.2004 : Director, Applied Mechanics, Materials Technology and Bioengineering Section, Dept. of Mechanical Engineering and Aeronautics.

Sept.1998- Aug.2004 : Member of the Research Committee of the University of Patras

Professional Involvement

1. Professor Yannis F. Missirlis pioneered Educational and Research activities in Greece in the areas of Biomechanics, Biomaterials, Biomedical Engineering, Regenerative Medicine. In the early 1980s he represented his country in the European Union in the scientific areas of Biotechnology, and Biomedical Engineering. He has been a founding member and a Council member of the World Council of Biomechanics (1994-2006). At the same time he has served as member of the Council of the European Society of Biomechanics (1994-2002) responsible for the Award Committee and the Education Committee.
2. At the invitation of the Science & Technology Foundation of Japan, through an application of Professor Kozaburo Hayashi (Osaka University), Prof. Missirlis visited Japan in March-April 1995. Intense and fruitful interactions between Prof. Missirlis and colleagues at prestigious Japanese Universities in Osaka, Tokyo, Yokohama, Kyoto, Sendai, Sapporo resulted in closer scientific (in the area of Biomedical Engineering) and cultural understanding on both sides.
3. Prof. Missirlis has been invited and given seminars , or invited plenary talks, apart from European and North American Educational and Research Establishments, to scientific audiences in Australia, China, India, Iran, Syria, Egypt, Tunisia, Argentina, Brazil, Cuba, Venezuela, Siberia (Russia), South Africa, Turkey, Uruguay, Chile, Bolivia, Peru, Ecuador, Colombia

Research Projects at Laboratory of Biomechanics & Biomedical Engineering

Project leader: Y.F.Missirlis

1. ITN –TECAS (Tissue Engineering Solutions for Cardiovascular Applications), Marie Curie Initial Training Network (partner) (2013 – 1/12/2016)

2. Bioreactive composite scaffold design (VASCUPLUG)

EU-FP6 **2005-2008** -NMP3-CT-2005-013811 314,000 euros (our lab)

3. Core Laboratories for the improvement of medical devices in clinical practice from the analysis of implanted prostheses (COST Action 537, chair: R.Barbucci, vice-chair: Y.Missirlis),2004-2008.

4. ESTABLISHMENT OF A MULTIDISCIPLINARY SCIENTIFIC NETWORK FOR THE DEVELOPMENT AND APPLICATION OF BIOMATERIALS (INTERREG III: GREECE-ITALY), 2006-2008

5. 5. Nanotechnology in Medicine (NANOMED)

Quality of life Program **2000-2003**.QLK3-CT-2000-01500 211,560 euros (our lab)

6. **“Development and Testing of Membranes for Biohybrid Systems” 1998-2001.**

BRITE-EURAM III-Contract CT98-0620. 225,000 ECU (our lab.)

7. **“Development of Biomaterials with improved Resistance to infection” 1997-2000**

BRITE-EURAM III-Contract CT97-0415 100.000 ECU (our lab.)

8. **“Design and evaluation of a Heparin adsorbing Filter for application, in the extracorporeal Hemodialysis” 1993-1997.**

BRITE-EURAM II-Contract CT92-0277 95,000 ECU (our lab.)

9. **“Long term performance and stability of materials for biomedical applications” 1994-1997**

CONCERTED ACTION BE7317 (Co-cordinator)

10. **“Resorbable continuous fiber reinforced polymers for osteosynthesis plates”**

BRITE-EURAM I-Contract CT91-0446 100,000 ecu (our lab).

11. **“Study of haemodialysis materials”** 1992-1994.
SCIENCE-CT91-0720
12. **“ Eurobiomat”** 1989-1992
CONCERTED ACTION ON BIOMATERIALS RESEARCH-MEDICAL RESEARCH PROGRAM II.1.2/2.

In addition, **several bilateral research projects** between the Biomechanics & Biomedical Engineering Lab and laboratories in **Germany, France, United Kingdom** and **Cuba** have been implemented.

Furthermore a number of **National Research** projects : PENED, THALIS, SYNERGASIA have been carried out. In 2013 a personal EXCELLENCE II research grant was awarded but the GSRT (Greek Secretariat of Research and Technology) took it away(!) as I was officially retired(!)

RECENT AND CURRENT COST ACTIONS

Professor YF Missirlis is an MC (or substitute MC) Member representing Greece in the following COST Actions:

- a. **COST 537 : Core Laboratories for the improvement of medical devices in clinical practice from the analysis of implanted prostheses (2004-2008)**
- b. **COST TD 1002 : European network on applications of Atomic Force Microscopy to NanoMedicine and Life Sciences (AFM4NanoMed&Bio) (2010-2014)**
- c. **COST BM 1002 : Nanomechanics of intermediate filament networks (NANONET) (2010-2014)**
- d. **COST TD 1305 : Improved Protection of Medical Devices Against Infection (IPROMEDAI) (2014-2018)**

- e. COST MP 1301 : **New Generation Biomimetic and Customized Implants for Bone Engineering (2013-2017)**
- f. COST CA15214 : **An integrative action for multidisciplinary studies on cellular structural networks (2016-2020)**
- g. COST CA16217 : **European network of multidisciplinary research to improve the urinary stents (2017-2021)**
- h. COST CA16119 : **In vitro 3-D total cell guidance and fitness (2017-2021)**
- i. COST CA16122 : **Biomaterials and advanced physical techniques for regenerative cardiology and neurology (2017-2021)**
- j. **COST CA17121 : CORRELATED MULTIMODAL IMAGING IN LIFE SCIENCES (2018-2022)**

HONORARY MEMBER

Since 2014 Yannis is a honorary member of the European Society of Biomechanics, the European Society for Biomaterials, as well as the Hellenic Society of Biomechanics and the Romanian Society for Biomaterials.

TEACHING

He has **coauthored a textbook: “Biomaterials, A Tantalus Experience” (Helsen-Missirlis, 2011)**, coedited 2 books: “ Modern aspects of Protein Adsorption on Biomaterials” (Missirlis-Lemm, 1991) and “ The role of

Platelets in Blood- Biomaterial Interactions” (Missirlis-Wautier, 1993).

Along with books in Greek (Chemistry for Engineers, Biomechanics I) and Notes, he has been teaching for 40 years: Chemistry, Biomechanics I & II, and for 30 years: Biomaterials.

Since 2004 until today (2019) he is teaching “Biomechanics & Biomaterials” at the graduate Program: Nanosciences & Nanotechnologies at the University of Thessaloniki.

REFEREED PUBLICATIONS

- 1. C.D. Armeniades, L.W. Lake, Y.F. Missirlis and H.J. Kennedy**, “Histological Origin of Aortic Tissue Mechanics”, Applied Polymer Symposium, 22, 319-339, 1973.
- 2. Y.F. Missirlis, C.D. Armeniades and J.H. Kennedy**, “Mechanical and Histological Study of Aortic Valve Tissue from a Patient with Marfans’s Disease”. Atherosclerosis, 24, 335-338, 1976.
- 3. Y.F. Missirlis and C.D. Armeniades**, “Parameters of the Stress Analysis on the Aortic Valve during Diastole”, Journal of Biomechanics, 9, 447-480, 1976.
- 4. Y.F. Missirlis and C.D. Armeniades**, “Ultrastructural Basis of the Human Aortic Valve Function”, Acta Anatomica, 98, 199-206, 1977.
- 5. Y.F. Missirlis**, “Use of Enzymolysis Techniques in Studying the Mechanical Properties of Connective Tissue Components”, Journal of Bioengineering, 1(3), 211-222, 1977.
- 6. M.C. Brain, I. Kohn, A.J. McComas, Y.F. Missirlis, M.P. Rathbone and J. Vickers**, “Red-Cell Stability in Duchenne Syndrome”, New England Journal of Medicine, 298, 403, 1978 (letter).
- 7. Y.F. Missirlis, I.L. Kohn, J.D. Vickers, M.P. Rathbone, D.H.K. Chui, A.J. McComas and M.C. Brain**, “Alterations in Erythrocyte Membrane Material Properties: A Marker of the Membrane Abnormality in Human and Chicken Muscular Dystrophy”, Erythrocyte Membranes: Recent Clinical and Experimental Advances, edited by G. Brewer, A.R. Liss, Inc. New York, N.Y. p. 189-200, 1978.
- 8. Y.F. Missirlis, F. Fong and M.C. Brain**, “Micropipette Analysis of the Hemolytic Stress of Hypotonic Erythrocytes”, Canadian Journal of Physiology and Pharmacology, 56, (3), 435-442, 1978.
- 9. Y.F. Missirlis and M. Chong**, “Aortic Mechanics-Part I: Material Properties of Natural Porcine Aortic Valves”, Journal of Bioengineering, 2, 278-300, 1978.
- 10. M. Chong and Y.F. Missirlis**, “Aortic Valve Mechanics-Part II: A Stress Analysis of the Porcine Aortic Valve Leaflets in Diastole”, Biomaterials, Medical Devices and Artificial Organs, 6(3), 225-244, 1978.

- 11.Y.F. Missirlis and M. Chong**, "Reply to the Discussion of Aortic Valve Mechanical Part II. A Stress Analysis of the Porcine Aortic Valve leaflets in Diastole by P. L. Could and M.P. Rossow", Biomaterials, Medical Devices and Artificial Organs, 7(3), 439-442, 1979.
- 12.Y.F. Missirlis and M.C. Brain**, "An Improved method for studying the Elastic Properties of Erythrocyte Membranes", Blood, 54(5), 1068-1079, 1979.
- 13.Y.F. Missirlis, M. Vanderwel, and M.C. Brain**, "Membrane Elasticity of Erythrocytes from Normal and Dystrophic Mice", Muscle and Nerve, 4, 141-148, 1981.
- 14.O.S. Hum, D.N. Ghista, J. Brash, B.W. Shragge and Y.F. Missirlis**, "The effects of Glutaraldehyde Fixation of Aortic Valve on their Mechanical Properties and Hydraulic Performance", Advances in Bioengineering pp. 139-142, 1982.
- 15.Y. Missirlis**, "Mechanical Properties of some Connective Tissues and their Components in vitro", Biomechanics IX-A, edited by D.A. Winter et. al., Human Kinetics Publishers, Champaign, Ill, pp. 176-180, 1983.
- 16.Y. Missirlis**, "Techniques for measuring erythrocyte and platelet mechanical properties", Blood Compatible Materials and their Testing, ed. by S. Dawids and A. Bantjes, M. Nijhoff Publishers, Dordrecht, pp. 81-92, 1986.
- 17.Y. Missirlis**, "Structure-Function Relationships for some Biological Tissues", Engineering Applications of New Composites, edited by S. Paipetis and G. Papanicolaou, Omega Scientific, Oxon, England, pp. 106-113, 1988.
- 18.D.D. Deligianni, Y.F. Missirlis, K.E. Tanner, W. Bonfield**, "Mechanical Behaviour of trabecular bone of the human femoral head in females", Journal of Materials Science: Materials in Medicine, 2, 168-175, 1991.
- 19.D. Mavrilas and Y.F. Missirlis**, "An approach to the optimization of preparation of bioprosthetic heart valves", J. Biomechanics, 24, 331-339, 1991.
- 20.G. Athanassiou, N. Zoubos and Y.F. Missirlis**, "Erythrocyte Membrane Deformability in Patients with Thalassaemia Syndromes", Nouvelle Revue Francaise d' Hematologie, 33, 15-20, 1991.
- 21.Y.F. Missirlis and W. Lemm, Editors**, "Modern Aspects of Protein Adsorption on Biomaterials", Kluwer academic publishers, Dordrecht, 1991.
- 22.G. Athanassiou, A. Symeonidis, A. Kourakli, Y.F. Missirlis and N.C. Zoumbos**, "Deformability of the Erythrocyte Membrane in Patients with Myelodysplastic Syndromes", Acta Haematol, 87, 169-172, 1992.
- 23.Y.F. Missirlis**. "How to deal with the complexity of the blood-polymer interactions", Clinical Materials, 11, 9-12, 1992.
- 24.Y.F. Missirlis and G. Michanetzis**, "Measurement of platelet adhesion, released β -thromboglobulin and generated fibrinopeptide A using whole non-anticoagulated blood at flow conditions", The Reference Materials of the European Communities, W. Lemm, editor, pp. 157-164. Kluwer academic publishers, Dordrecht, 1992.
- 25.Y.F. Missirlis and J-L Wautier, Editors**, "The role of platelets in blood-biomaterial interactions", Kluwer academic publishers, Dordrecht, 1993.
- 26.Th. Groth, G. Michanetzis, Y. Missirlis, H. Wolf**, "The interrelationship between platelet adhesiveness and released platelet factors during standardized in-vitro blood/biomaterial contact", Biomaterial-Tissue Interfaces, P.J. Doherty et al. (eds). pp. 247-251, 1992.

- 27.G. Athanassiou, M. Savakis, Y. Missirlis**, "Filterability of erythrocytes in patients with myelodysplastic and β -thalassemic syndromes", Clinical Hemorheology, **13**, 767-774, 1993.
- 28.A. Podias, Th. Groth, Y. Missirlis**, "The effect of shear rate on the adhesion/activation of human platelets in flow through a closed-loop polymeric tubular system", J. Biomater. Sci. Polymer Edn, **6**, 339-410, 1994.
- 29.D. Deligianni, A. Maris, Y. Missirlis**, "Stress relaxation behaviour of trabecular bone specimens", Journal of Biomechanics, **27**, 1469-1476, 1994.
- 30.Th. Groth, A. Podias, Y. Missirlis, R. Hesse**, "Platelet adhesion and activation under static and flow conditions", Colloids and Surfaces B: Biointerfaces, **3**, 241-249, 1994.
- 31.G. Athanassiou, W. Meier, D. Lerche, Y. Missirlis**, "The viscosity of RBCM from patients with thalassemic syndromes", Nouvelle Revue Francaise d' Hematologie, **36**, 229-233, 1994.
- 32.D.D. Deligianni, Y. F. Missirlis and V. Kafka**, "Determination of material constants and hydraulic strengthening of trabecular bone through an orthotropic structural model", Biorheology, **31**, 245-257, 1994.
- 33.Y.F. Missirlis and V. Kalerides**, "Polymorphonuclear Leukocyte Deformability in Type II Diabetes Mellitus and in Ageing", Clinical Hemorheology, **14**, 489-495, 1994.
- 34.Y.F. Missirlis, D. Deligianni and D. Mavrilas**, "Test Methodology for Following Biodegradation in Vitro", Journal of Biomaterials Science, Polymer Edition, **6**, 827-832, 1994.
- 35.G.P.A. Michanetzis and Y.F. Missirlis**, "Flow-dependent platelet behaviour in blood-material interactions", Journal of Materials Science: Materials in Medicine, **7**, 29-33, 1996.
- 36.J. Kapolis, D. Mavrilas, Y. Missirlis and P.G. Koutsoukos**, "Model Experimental System for Investigation of Heart Valve Calcification in-vitro", J. Biomed. Mater. Res (Appl. Biomater.) **38**: 183-190, 1997.
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- 38.M. Dauner, H. Planck, L. Caramaro, Y. Missirlis and E. Panagiotopoulos**, "Resorbable continuous - fibre reinforced polymers for osteosynthesis", J. Mat. Sci.: Materials in Medicine: **9**: 173-179, 1998.
- 39.P. Korovertis, D. Deligianni, M. Stamatakis, Y. Missirlis**, "Augmentation of anterior transvertebral screws using threaded teflon anchoring", J.Spinal Disorders **11(4)**, 300-306,1998.
- 40.D. Deligianni, P. Korovertis, A. Baikoyis, Y. Missirlis**, "Factor analysis of the effectiveness of transfixation and rod characteristics on the TSRH screw-rod instrumentation", J Spinal Disorders, **13(1)**, 50-57,2000.
- 41.G. Athanassiou, P. Matsouka, V. Kaleridis and Y. Missirlis**, "Deformability and filterability of white blood cell subpopulations. Evaluation of these parameters in the cell line HL-60 and in type II diabetes mellitus", Clin. Hemorheology and Microcirculation, **22**, 35-43, 2000.

- 42.D. Deligianni, N. Katsala, P. Koutsoukos, Y. Missirlis**, "Effect of surface roughness of hydroxyapatite on human bone marrow cells adhesion, proliferation, differentiation and cell detachment strength", Biomaterials, 22(1), 87-96, 2000.
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- 45.A. Skoutelis, V. Kaleridis, C. Gogos, G. Athanassiou, Y.F. Missirlis, H. Bassaris**, "Effect of cytokines and colony-stimulating factors on passive polymorphonuclear leucocyte deformability in-vitro", Cytokine 12(11):1737-1740, 2000.
- 46.D. Deligianni, N. Katsala, S. Ladas, D. Sotiropoulou, J. Amedee, Y. Missirlis**, "Effect of surface roughness of the titanium alloy Ti-6Al-4V on human bone marrow cell response and on protein adsorption", Biomaterials,22(11):1241-1251, 2001.
- 47. P. Korovesis, A. Baikoyisis, D. Deligianni, Y. Missirlis and P. Soukakos**, "Effectiveness of Transfixation and Length of Instrumentation on Titanium and Stainless Steel Transpedicular Spine Implants", J Spinal Disorders 14(2), 109-117, 2001.
- 48.A. Symeonidis, G. Athanassiou, A. Psiroyannis, V. Kyriazopoulou, K. Kapatais-Zoumbos, Y. Missirlis and N. Zoumbos**, "Impairment of erythrocyte viscoelasticity is correlated with levels of glycosylated haemoglobin in diabetic patients", Clin.Lab.Haem. 23: 103-109,2001.
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- 53.B. Seifert, G.Michanetzis, T. Groth, W. Albrecht, K. Richau, Y. Missirlis, D. Paul and G. von Sengbusch**, "Polyetherimide: A New Membrane-Forming Polymer for Biomedical Applications", Artificial Organs 26 (2), 189-199, 2002.
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