VITA OF

MARIA E. STAVROULAKI

LECTURER
APPLIED MECHANICS LABORATORY (A.ME.L)
DEPARTMENT OF SCIENCES
TECHNICAL UNIVERSITY OF CRETE (T.U.C)

PERSONAL DATA

Maria E. Stavroulaki, Lecturer, Dr. Civil Engineer, Applied Mechanics Laboratory, Department of Sciences, Technical University of Crete (2005)

Nationality: Greek

Year of birth: 1965

Place of birth: Chania, Crete, Greece

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STUDIES

- 1983 - 1988

  Civil Engineering, Aristotle University of Thessaloniki, Polytechnic School, Department of Civil Engineering, Thessaloniki, Greece.

  Honors from the Greek Ministry of Education and from the Technical Chamber of Greece.

  Diploma of Civil Engineering

- 1990 – 1996

  Preparation of the Ph.D Thesis, research and teaching activity.

  Applied Mechanics Laboratory, Department of Sciences, Technical University of Crete, Greece.

Activity in Greek and European Research Projects.

PhD Degree under the supervision of Prof. Leftheris, T.U.C

AREAS OF SPECIALIZATION

Structural Engineering (Computational Mechanics for Heritage Structures, Structural Analysis and Design, Structural Dynamics, Earthquake Engineering, Restoration of Ancient Monuments, Restoration and Strengthening of Structures, Structural Stability).

Numerical Methods (Finite Elements, Great experience with both teaching and industrial activities).

Applied Mechanics (Continuum Mechanics, Mechanics of Materials).

RESEARCH ACTIVITY

Participation to the following research projects and author of the projects technical reports

- October 1991 - December 1993

Subject : Seismic Analysis of Structures in Crete

Financier: General Secretariat of Crete

Scientific head: Prof. B. Leftheris

- July 1994 - December 1994

Subject : Static and dynamic analysis of the lighthouse and the breakwater at the Venecian Harbor of Chania.

Financier: East Crete Development Organization, RE.CIT.E-ROC-NORD, General Secretariat of Crete

Participants: Technical University of Crete, Municipality of Chania - 13$^{\eta}$ Department of Byzantine and after Byzantine Monuments of Crete

Scientific head: Prof. B. Leftheris

- September 1996 - December 1996

Subject : Static analysis of a clock tower at the Batolakos settlement, Chania

Financier: Filipas Tsagakis, Architecture

Scientific head: Prof. B. Leftheris

- October 1996 – January 2000

Subject : Recording and valuation of the structural condition and seismic sufficient of monuments & application of restoration and conservation techniques.

Financier: General Secretariat of Crete

Scientific head: Prof. B. Leftheris

- April 1998 - March 2000

Subject : Fatigue and Abrasion Mechanisms in Fabric Feinforced Rubber Belting.

Financier: European Community, Industrial & Materials Technologies Programme (Brite Euram III)

Participants: MERL (Materials Engineering Research Laboratory Ltd), OCE-Nederland BV, Optigrade AB, Dunlop ENERKA BV, Ausimont SpA, Technical University of Crete (Applied Mechanics Laboratory, Department of Sciences)

Scientific head: Prof. D. Sotiropoulos, Assistant Prof. Costas Providakis

- 2005 - 2007

Subject : Vibration damping control using PZT actuators.

Financier: "Archimedes - EPEAEK II Research Programme', co-funded by European Social Fund and National Resources.

Participants: Applied Mechanics Laboratory, Department of Sciences, Technical University of Crete – Technological Educational Institute of Patras.

Scientific head: Prof. Costas Providakis

OTHER ACTIVITIES

Training of TUC students and graduate students in the Mechanics of structures, Mechanics of materials, Steel and wood structures, Computational Mechanics, Application of computational methods (finite element), Special topics in Construction, Use of computational programs.
Chairman of the theses of 3 master's students. Sate of advisory committee of theses of 6 master's students and 3 doctoral students.

Scientific Associate of Applied Mechanics Laboratory (from 1996 to 2005): Support to the laboratory holding experiments for education and research purpose. Support to the computers department of the Laboratory. Teaching assistant. Supplementary guidance to graduate students. Writing and suggestion of research projects.

Knowledge of : Fortran, Finite element software (pre-and-post processor) (COSMOSM, NASTRAN (PATRAN), MARC (MENTAT), STATIK, SAP2004), AUTOCAT, LATEX, WORD, EXCEL.

Professional civil engineer with experience to study and supervise of private civil engineering structures. (1989-1999)
Participation in the Scientific Committee on the old Chania City fortifications (2005-2010)

PROFESSIONAL MEMEBERSHIPS

Member of Technical Chamber of Greece (TEE)

PUBLICATIONS

Ph.D Thesis M.E. Stavroulaki, *Optimal Design for Methods of Restoration and Strengthening of Structures. Application on Prestressing.* Ph.D Thesis, Laboratory of Applied Mechanics, Department of Applied Sciences, Technical University of Crete, Chania, 1996.

Books

- **Βιβλία**

Basil Leftheris, Maria E. Stavroulaki, Argyro C. Sapounaki, Georgios E. Stavroulakis, *'Computational methods for heritage structures'*, WIT Press, Southampton, U.K., 2006.

Published Papers in Refereed Journals

1. M.E. Stavroulaki, G.E. Stavroulakis, B. Leftheris, 'Modelling prestress restoration of buildings by general purpose structural analysis optimization software', *Computers and Structures*, Vol.62, No.1, pp81-92, Elsevier Science Ltd, 1997.
2. M.E. Stavroulaki, B. Leftheris, G.E. Stavroulakis, 'Optimal prestress in modal analysis via induced temperature modelling', *Structural Optimization*, 13, pp95-103, Springer Verlag, 1997.
3. M.E. Stavroulaki, A. Sapounaki, B. Leftheris, E. Tzanaki, G.E. Stavroulakis, 'Materials modelling and modal analysis of the lighthouse in the venetian harbour of Chania', *Technische Mechanik*, 18(4), pp.251-259, 1998 .
4. Z. Agioutantis, E. Chatzopoulou and M. E. Stavroulaki, 'A numerical investigation of the effect of the interfacial zone in concrete mixtures under uniaxial compression', *Cement and Concrete Research*, 30, pp. 5-723, 2000.
5. M. E. Stavroulaki, G.E. Stavroulakis, "Unilateral contact applications using FEM software", 'Invited paper' in *International Journal of Applied Mathematics and Computer Sciences, Special Issue: Mathematical Modeling and Numerical analysis in Solid Mechanics*, Guest Editors: M. Sofonea, J.M. Viano, 12(1), 2002.
6. G.E. Stavroulakis, G. Drosopoulos, M.E. Stavroulaki, Ch. Massalas, and A. Liolios: 'Solvability and limit analysis of masonry bridges'**,** *Analysis and Simulation of Contact Problems*, 27, pp. 389-390, Springer Berlin / Heidelberg, 2006.
7. C. P. Providakis, D.-P. N. Kontoni, M. E. Voutetaki and M. E. Stavroulaki**,** **'**Comparisons of smart damping treatments based on FEM modeling of electromechanical impedance', *Smart Structures and Systems,* Techno Press, 4(1), 2008.
8. Maria E. Stavroulaki, Vagelis B. Liarakos, 'Parametric finite element analysis of masonry structures using different failure criteria', Journal of Structural Engineering, ASCE, 2009 (υπό κρίση).

Papers in Conference Proceedings

1. B. Leftheris, E. Tzanaki, M. Stavroulaki, 'Dynamic criteria for reinforcement of old buildings', in *Proceedings of STREMA93, Structural Studies, Repairs and Maintenance of Historical Buildings III*, Editors: C.A. Brebbia, R.J.B. Frewer, Bath, U.K., 1993.
2. M. Stavroulaki, B. Leftheris, 'Application of response spectrum analysis in historical buildings', in *Proceedings of STREMA95, Structural Studies, Repairs and Maintenance of Historical Buildings IV*, Vol.2, pp93-100, Editors: B. Leftheris, C.A. Brebbia, Chania, 1995.
3. B. Leftheris, M. Stavroulaki, E. Tzanaki, Dynamic criteria applications for analysis of the static and dynamic sufficiency of masonry structures', in *Proceedings of STREMA95, Structural Studies, Repairs and Maintenance of Historical Buildings IV*, Vol.2, pp101-108, Editors: B. Leftheris, C.A. Brebbia, Chania, 1995.
4. B. Leftheris, M.E. Stavroulaki, E. Tzanaki, A. Sapounaki, G.E. Stavroulakis, 'Modal identification and aseismic inspection of a masonry lighthouse in the venetian harbor of Chania, in *Proceedings of The International Conference on Earthquake Engineering*, pp 701-711, Amman, Jordan, 1995.
5. M.E. Stavroulaki, G.E. Stavroulakis, B. Leftheris, 'Modelling prestress restoration for static and earthquake loading by general purpose structural analysis and optimization software', in *Proceedings of 2nd National Congress on Computational Mechanics*, Vol.1, pp26-33, Editors: D.A. Sotiropoulos, D.E. Beskos, Chania, 1996.
6. M.E. Stavroulaki, B. Leftheris, G.E. Stavroulakis, 'Optimal prestress strengthening of a masonry lighthouse for static and earthquake loading', in *Proceedings of Earthquake Resistant Engineering Structures*, pp535-544, Editors: G.D. Manolis, D.E. Beskos, C.A. Brebbia, Thessaloniki, 1996.
7. M.E. Stavroulaki, A. Sapounaki, B. Leftheris, G.E. Stavroulakis, 'Influence of the type of masonry construction on the dynamic, response spectrum analysis', in *Proceedings of STREMMAH97, Structural Studies, Repairs and Maintenance of Historical Buildings*, pp.487-497, Editors: S. Sanchez-Beitia, C.A. Brebbia, Spain, 1997.
8. M.E. Stavroulaki, A.K. Sapounaki, G.E. Stavroulakis, B.P. Leftheris, 'The mantle of shotcrete as a method of internention of masonry structures', in *Proceedings of*

STREMMAH99, Structural Studies, Repairs and Maintenance of Historical Buildings, pp. 757-766, Editors: , C.A. Brebbia, Dresden, Germany, 1999.

9. B.P. Leftheris, M.E. Stavroulaki, A.K. Sapounaki, E. Tsofopoulou-Gkini, 'The bridges build by the English during the early part of the last century in the Ionian Island of Kythera', in *Proceedings of STREMMAH99, Structural Studies, Repairs and Maintenance of Historical Buildings*, pp.303-312, Editors: C.A. Brebbia, W. Jager, Dresden, Germany, 1999.
10. Costas P. Providakis, Stelios I. Mikrakis, Niki K. Garofalaki, Maria E. Stavroulaki, 'Finite element analysis of contact problems in rubber covered rolls', in *Proceedings of IASS-IACM 2000, Fourth International Colloquium on Computation of Shell & Spatial Structures*, Chania-Crete, Greece, 2000.
11. Maria E. Stavroulaki, Andrew Stevenson, Stephen Bowron, 'Finite element analysis of rubber coated rollers contact problem and the phenomena of friction', in *Proceedings of IASS-IACM 2000, Fourth International Colloquium on Computation of Shell & Spatial Structures*, Chania-Crete, Greece, 2000.
12. M. E. Stavroulaki, A. C. Sapounaki, G.E. Stavroulakis, B. Leftheris, "Influence of strengthening techniques on the dynamic response of masonry structures", in *Proceedings of STREMMAH 2001, Structural Studies, Repairs and Maintenance of Historical Buildings*, pp.383-393, Editors: C.A. Brebbia, Bologna, Italy, 2001.
13. Basil Leftheris, Georgios E. Stavroulaki, Maria E. Stavroulaki, Argyro C. Sapounaki, "Heritage structures are the benchmarks of our cultural evolution", in *Proceedings of STREMMAH 2001, Structural Studies, Repairs and Maintenance of Historical Buildings*, pp.633-643, Editors: C.A. Brebbia, Bologna, Italy, 2001.
14. M.E. Stavroulaki, A.K. Sapounaki, B.P. Leftheris, G.E. Stavroulakis, "Nonlinear finite elements for damage analysis of the Plaka stone bridge in Epirus", in *Proceedings of 4th Congress on Computational Mechanics*, GRACM2002, Patra, 2002.
15. M.E. Stavroulaki, G.E. Stavroulakis, "Nonlinear ftictional contact nonlinearities in aseismic design and restoration of heritage structures", in *Proceedings of the International conference on Nonsmooth/Nonconvex Mechanics, with Applications in Engineering*, Editor: C.C. Baniotopoulos, pp. 209-216, Thessaloniki, Greece, 2002.
16. M.E. Stavroulaki, G.E. Stavroulaki, "Unilateral contact analysis and failure prediction in stone bridges", in *Proceedings of STREMMAH 2003, Structural Studies, Repairs and Maintenance of Historical Buildings*,7-9 May, Halkidiki, 2003.

17. M.E. Stavroulaki, 'Finite element analysis of a stone bridge for failure prediction', in *7th National Congress on Mechanics*, 24-26 June, Chania, Crete, Greece, 2004.
18. C. P. Providakis, C. Mouliotas, M. Stavroulaki, "Finite element analysis of total hip implants", in *7th National Congress on Mechanics*, 24-26 June, Chania, Crete, Greece, 2004.
19. C.P. Providakis, S. Kourtakis, M. Stavroulaki, "Fracture instability of cracked metallic thick cylinders by using the strain energy rate density", in *7th National Congress on Mechanics*, 24-26 June, Chania, Crete, Greece, 2004.
20. G.E. Stavroulakis, G.A. Drosopoulos, M.E. Stavroulaki, C.V. Massalas, A.A. Liolios: '*Solvability of variational and hemivariational inequalities, limit analysis and application on masonry bridges'* CMIS 2005, Hannover, July, 2005.
21. C. P. Providakis, M. E. Voutetaki, M. E. Stauroulaki & D.- P. N. Kontoni, "FEM Modeling of Electromechanical Impedance for the Analysis of Smart Damping Treatments", in *Proceedings of the "International Conference on Industrial Electronics, Technology & Automation 2005 (IETA 05) - International Joint Conferences on Computer, Information, and Systems Sciences, and Engineering 2005 (CISSE 2005, CIS²E 05)"*, 12-18 Dec. 2005, DVD-ROM Proceedings, 2005, and also in Hardcover Proceedings *"Advances in Computer, Information, and Systems Sciences, and Engineering – Proceedings of IETA 2005, TeNe 2005 and EIAE 2005"*, Elleithy K., Sobh T., Mahmood A., Iskander M. & Karim M. (Eds.), Springer, pp. 129-133, 2006.
22. C. P. Providakis, M. E. Voutetaki, D.- P. N. Kontoni & M. E. Stauroulaki, "A Comparison of active constrained layer damping treatments using FEM modeling of electromechanical impedance", in *"Advances in Computational & Experimental Engineering and Sciences - Proceedings of the 'International Conference on Computational & Experimental Engineering and Sciences' (ICCES'05)"*, S.M. Sivakumar, A. Meher Prasad, B. Dattarugu, S. Narayanan, A.M. Rajendran & S. N. Atluri (Editors), 1-6 Dec. 2005, Chennai, India, pp. 2094-2099, Tech Science Press, 2005.
23. M.E. Stavroulaki, 'Dynamic analysis of a stone bridge including contact and friction effects', *International Conference on Nonsmooth / Nonconvex Mechanics with Applications in Engineering (NNMAE2006),* Thessaloniki, Greece, July, 2006.

24. Maria E. Stavroulaki, Vagelis B.Liarakos, 'Parametric dynamic analysis of a masonry wall with lintels of reinforced concrete over the openings', *ECCOMAS Thematic Conference on Computational Methods in Structural Dynamic and Earthquake Engineering*, Rethymno, Crete, Greece, June, 2007.

25. V. Liarakos, Y. Tsompanakis, C.P. Providakis and M.E. Stavroulaki, 'Dynamic interaction of tunnels and surface structures', *ECCOMAS Thematic Conference on Computational Methods in Structural Dynamic and Earthquake Engineering*, Rethymno, Crete, Greece, June, 2007.

26. Maria E. Stavroulaki, Vagelis B. Liarakos, 'Parametric finite element analysis of masonry structures using different constitutive models', *Proceedings of 6th GRACM International Congress on Computational Mechanics,* Thessaloniki, Greece, June 2008.

27. M. E. Stavroulaki, Ch. K. Amanatidou, 'Seismic behavior of an unreinforced masonry building with various floor systems', *Proceedings of the Ninth International Conference on Computational Structures Technology,* Athens, Greece, September, 2008.

28. M.E. Stavroulaki, K. Pateraki, 'Dynamic response of masonry walls in connection with reinforced concrete frame', 5th Contact Mechanics International Symposium, Chania, Crete, Greece, 28-30 April 2009.

29. M. E. Stavroulaki, Michele Betti, G.E. Stavroulakis, 'Strengthening of masonry using metal reinforcement. A parametric numerical investigation', *International Conference PROHITECH (Protection of Historical Buildings by Reversible Mixed Technologies),* Rome, 21-24 June 2009.

30. Μαρία Ε. Σταυρουλάκη, 'Σεισμική συμπεριφορά ιστορικών κατασκευών με σύνθετο δομικό φορέα', *2ο Πανελλήνιο Συνέδριο Αναστηλώσεων της ΕΤΕΠΑΜ (Εταιρεία Έρευνας και Προώθησης της Επιστημονικής Αναστήλωσης Μνημείων)*, 21-24 Μαίου 2009.

Citations

1. M. Karaveziroglou, E. Stavrakakis and P. Lazarides, A. Liolios, M. Giannopoulou, and Y. Roukounis, M. Yeroyianni, 'A comparative analysis of some historical stone arch bridges

in Greece by two new numerical approaches', *Historical Constructions*, Eds. P.B. Lourenco, P. Roca, Guimaraes, pp.749-755, 2001.

2. Agioutantis Z., Stiakakis C., Kleftakis S., 'Numerical simulation of the mechanical behaviour of epoxy based mortars under compressive loads', *Computer and Structures*, 80 (27-30), pp. 2071-2084, Nov. 2002.
3. A. Liolios, V.A. Profillidis, K. Pitilakis, S. Savidis, M. Yeroyianni: 'A nonconvex numerical approach to the dynamic soil pipeline interaction induced by high speed railway traffic', *Proc. International Conference On Nonsmooth/Nonconvex Mechanics*, Ed. C.C. Baniotopoulos, Ziti Publications, pp. 417-423, Thessaloniki 2002.
4. Θεμιστοκλής Ν. Νικολαίδης, 'Προτάσεις διαμόρφωσης και εφαρμογής συστημάτων ελέγχου των παραμορφώσεων σε φορείς μεγάλων ανοιγμάτων με χρήση καλωδίων', *Διδακτορική διατριβή*, Τμήμα Πολιτικών Μηχανικών, Αριστοτελείου Πανεπιστημίου Θεσσαλονίκης, Θεσσαλονίκη, 2003.
5. Xiaoyun Liao, G. Gary Wangb*: 'Non-linear dimensional variation analysis for sheet metal assemblies by contact modeling'*, Finite Elements in Analysis and Design 44, pp. 34 – 44, Elsevier, 2007.
6. M.F. Pelllissetti, G.I. Schuëller, 'Scalable uncertainty and reliability analysis by integration of advanced Monte Carlo simulation and generic finite element solvers', Computers and Structures, 87, pp.930-947, Elsevier, 2009.
7. Asterios Liolios, George T. Michaltsos and Konstantinos Liolios, 'A numerical approach to the dynamic problem of steel pile-soil interaction under environmental and second-order geometric effects', 5th Contact Mechanics International Symposium, Chania, Crete, Greece, 28-30 April 2009.