

Μανόλης Παπαδρακάκης
Καθηγητής Δομοστατικής, Σχολής Πολιτικών Μηχανικών
Εθνικού Μετσόβιου Πολυτεχνείου

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ΣΠΟΥΔΕΣ

1966-1971 Δίπλωμα Πολιτικού Μηχανικού, ΕΜΠ
1974-1975 Master of Science Δομοστατικού Μηχανικού, City University of London
1975-1978 Ph. D. στην Υπολογιστική Δομοστατική, City University of London

ΑΚΑΔΗΜΑΪΚΗ ΕΞΕΛΙΞΗ

1978-1979 Έμμισθος Επιστημονικός Συνεργάτης στην τ. Έδρα Στατικής του ΕΜΠ.
1979-1982 Επιμελητής στην τ. Έδρα Στατικής του ΕΜΠ.
1982-1984 Λέκτορας Τομέα Δομοστατικής ΕΜΠ, κατόπιν εντάξεως σύμφωνα με τις μεταβατικές διατάξεις του νομού 1268/82.
1984-1985 Μόνιμος Λέκτορας Τομέα Δομοστατικής ΕΜΠ, σε προσωποπαγή θέση σύμφωνα με τις μεταβατικές διατάξεις του νομού 1268/82.
1985-1987 Μόνιμος Λέκτορας Τομέα Δομοστατικής ΕΜΠ, κατόπιν επανεντάξεως σύμφωνα με τις μεταβατικές διατάξεις του νομού 1566/85.
1987-1991 Μόνιμος Επίκουρος Καθηγητής Τομέα Δομοστατικής ΕΜΠ.
1991-1996 Αναπληρωτής Καθηγητής Τομέα Δομοστατικής ΕΜΠ.
1996- Καθηγητής Τομέα Δομοστατικής ΕΜΠ.

ΔΗΜΟΣΙΕΥΣΕΙΣ

Σύνολο δημοσιεύσεων **396** εκ των οποίων:

- **132** άρθρα σε διεθνή επιστημονικά περιοδικά
- **254** άρθρα σε πρακτικά διεθνών συνεδρίων
- **28** κεφάλαια σε βιβλία διεθνούς εκδόσεως
- **11** βιβλία διεθνούς εκδόσεως ως συντάκτης.
- **4** βιβλία ελληνικής εκδόσεως.
- **21** τόμους πρακτικών διεθνών συνεδρίων ως συντάκτης.
- **8** ειδικά τεύχη διεθνών περιοδικών ως συντάκτης.

ΕΠΙΣΤΗΜΟΝΙΚΗ ΔΡΑΣΤΗΡΙΟΤΗΤΑ

- Πρόεδρος της European Community on Computational Methods in Applied Sciences (ECCOMAS) .
- Πρόεδρος της Ελληνικής Εταιρείας Υπολογιστικής Μηχανικής (ΕΛΕΤΥΜ) (2002-2006).
- Πρόεδρος της Δομοστατικής Επιτροπής της Ευρωπαϊκής Εταιρείας Υπολογιστικών Μεθόδων Εφαρμοσμένων Επιστημών (ECCOMAS) (2003-2008).
- Διευθυντής του Εργαστηρίου Στατικής και Αντισεισμικών Ερευνών του ΕΜΠ.
- Διευθυντής του ΔΠΜΣ «Δομοστατικός Σχεδιασμός και Ανάλυση Κατασκευών» του ΕΜΠ.
- Διευθυντής του Τομέα Δομοστατικής της Σχολής Πολιτικών Μηχανικών ΕΜΠ (2001-2003), 2009.
- Εταίρος της Διεθνούς Εταιρείας Υπολογιστικής Μηχανικής (IACM).
- Αντεπιστέλλον Μέλος του Εκτελεστικού Συμβουλίου της Διεθνούς Εταιρείας Υπολογιστικής Μηχανικής (IACM).
- Μέλος του Τεχνικού Συμβουλίου της European Association of Structural Dynamics (EASD)
- Μέλος του Γενικού Συμβουλίου της Διεθνούς Εταιρείας Υπολογιστικής Μηχανικής (IACM).
- Μέλος του Δ.Σ. της Ελληνικής Εταιρείας Θεωρητικής και Εφαρμοσμένης Μηχανικής (ΕΕΘΕΜ).
- Μέλος της Συμβουλευτικής Επιτροπής, υπεύθυνος για τις Επιστήμες του Μηχανικού της ηλεκτρονικής βάσης δεδομένων SCOPOUS του ELSEVIER.

- Μέλος σε 10 εθνικών και διεθνών επιστημονικών εταιρειών.
- Βραβείο Computational Mechanics Award IACM (2006).
- Πρόεδρος ή Συμπρόεδρος 13 διεθνών συνεδρίων. Διοργανωτής 7 διεθνών σεμιναρίων.
- Μέλος Επιστημονικής Επιτροπής σε πάνω από 100 διεθνή συνέδρια
- Κύριος Ομιλητής (Plenary – Keynote Speaker) και Προσκεκλημένος Ομιλητής σε πάνω από 40 διεθνή συνέδρια και 15 διεθνή και εθνικά σεμινάρια.
- Έχει επιβλέψει 11Δ ιδακτορικές Διατριβές.
- Διοργανωτής 10 Ειδικών Συνεδριών σε διεθνή συνέδρια.
- Έχει συμμετάσχει σε 18 ανταγωνιστικά ερευνητικά προγράμματα χρηματοδοτούμενα από εθνικούς πόρους.
- Έχει συμμετάσχει σε 8 ανταγωνιστικά ερευνητικά προγράμματα χρηματοδοτημένα από ευρωπαϊκούς πόρους.
- Μέλος επτά διεθνών και εθνικών επιστημονικών εταιρειών.
- Έχει πάνω από 2000 αναφορές τρίτων στη διεθνή βιβλιογραφία με δείκτη h=22.

ΕΠΙΣΤΗΜΟΝΙΚΑ ΠΕΡΙΟΔΙΚΑ

- Αρχισυντάκτης – Εκδότης του Επιστημονικού Περιοδικού: Computer Methods in Applied Mechanics and Engineering (52 τεύχη ετησίως) (2001-)
- Επίτιμος Συντάκτης του Επιστημονικού Περιοδικού: International Journal of Computational Methods (2004-)
- Μέλος της Συντακτικής Επιτροπής των Επιστημονικών Περιοδικών:
 1. Computers and Structures
 2. Journal of Space Structures
 3. Advances in Engineering Software
 4. Archives of Computational Methods in Engineering
 5. International Journal of Structural Stability and Dynamics
 6. International Journal of Computational Methods in Engineering Science and Mechanics
 7. International Journal of Reliability and Safety
 8. JP Journal of Solids and Structures
 9. Journal of the International Association of Shells and Spatial Structures
 10. Advances in Computer Science and Engineering
 11. Journal of the Serbian Society for Computational Mechanics
 12. International Journal of Reliability and Safety (2006)
 13. International Journal of Computational Engineering Science (2000-2004)
 14. International Journal of Engineering Analysis and Design (1994)
 15. Computer Methods in Applied Mechanics and Engineering (1997-2000)
 16. Computing Systems in Engineering (1990-1995)
- Κριτής των Επιστημονικών Περιοδικών:
 1. Computer Methods in Applied Mechanics and Engineering
 2. Computing Systems in Engineering
 3. Computers and Structures
 4. Journal of Space Structures
 5. Advances in Engineering Software
 6. Archives of Computational Methods in Engineering
 7. International Journal of Structural Stability and Dynamics
 8. International Journal of Computational Engineering Science
 9. International Journal of Engineering Analysis and Design
 10. Computers and Concrete
 11. ASCE, Journal of Engineering Mechanics
 12. ASCE, Journal of Structural Engineering
 13. ASME Journal of Applied Mechanics
 14. Engineering with Computers
 15. Structural Engineering and Mechanics
 16. AIAA Journal of American Institute of Aeronautics and Astronautics

17. International Journal for Numerical Methods in Engineering
18. International Journal of Nonlinear Mechanics
19. Engineering Computations
20. Journal of Inverse Problems in Engineering
21. Computational Mechanics Journal
22. European Journal of Mechanics
23. Journal of Computer–Aided Civil and Infrastructure Engineering
24. Journal of Construction Steel Research
25. Earthquake Engineering and Structural Dynamics Journal
26. Journal of Earthquake Engineering
27. Microcomputers in Civil Engineering
28. Communications in Numerical Methods in Engineering
29. Soil Dynamics and Earthquake Engineering
30. Journal of Probabilistic Engineering Mechanics
31. Arabian Journal for Science and Engineering
32. Engineering Structures Journal
33. Structural Engineering Review
34. Iranian Journal of Science and Technology
35. International Journal of Mechanical Sciences
36. Journal of Applied Soft Computing
37. Journal of Computational and Applied Mathematics
38. OMEGA Journal
39. .Journal of the Intern. Assoc. for Shells and Spatial Structures
40. Journal of Impact Engineering
41. Journal of Vibration and Acoustics
42. Journal of Soft Computing
43. Journal of Franklin Institute

ΕΡΕΥΝΗΤΙΚΗ ΔΡΑΣΤΗΡΙΟΤΗΤΑ - ΠΕΔΙΑ ΕΡΕΥΝΗΤΙΚΟΥ ΕΝΔΙΑΦΕΡΟΝΤΟΣ

- Μη γραμμική ανάλυση κατασκευών από σκυρόδεμα υπό στατική και δυναμική-σεισμική φόρτιση.
- Μη γραμμική ανάλυση μεταλλικών κατασκευών υπό στατική και δυναμική-σεισμική φόρτιση.
- Επίλυση μεγάλης κλίμακας προσομοιωμάτων πεπερασμένων στοιχείων με τη μέθοδο των υποφορέων σε σειριακό και παράλληλο υπολογιστικό περιβάλλον.
- Βέλτιστος σχεδιασμός κατασκευών με στοχαστικές μεθόδους βελτιστοποίησης.
- Επίλυση προβλημάτων με προσαρμοστικά πεπερασμένα στοιχεία.
- Επίλυση προβλημάτων ιδιοτιμών-ιδιοδιανυσμάτων μεγάλης κλίμακας.
- Στοχαστική ανάλυση κατασκευών και ανάλυση αξιοπιστίας με πεπερασμένα στοιχεία.
- Προβλήματα επαφής-κρούσης με πεπερασμένα στοιχεία.
- Εφαρμογές των νευρωνικών δικτύων στην επιστήμη το Δομοστατικού Μηχανικού.
- Προβλήματα αλληλεπίδρασης εδάφους-κατασκευής και ρευστού-στερεού με πεπερασμένα στοιχεία.

ΔΙΔΑΚΤΙΚΗ ΕΜΠΕΙΡΙΑ

Έχει διδάξει τα παρακάτω μαθήματα στο Ε.Μ.Πολυτεχνείο

Προπτυχιακά Μαθήματα:

- Στατική I – Στατικώς Ορισμένοι Φορείς
- Στατική II – Στατικώς Αόριστοι Φορείς
- Στατική III – Μητρική Ανάλυση Φορέων
- Στατική IV – Δυναμική Ανάλυση Φορέων
- Στατική V – Πλαστική Ανάλυση Φορέων
- Ανάλυση Φορέων με την Μέθοδο των Πεπερασμένων Στοιχείων
- Ειδικά Κεφάλαια Ανάλυσης Φορέων με Πεπερασμένα Στοιχεία

Μεταπτυχιακά Μαθήματα:

- Μη γραμμικά προσομοιώματα οπλισμένου σκυροδέματος και χάλυβα
- Μη Γραμμική Ανάλυση Φορέων με Πεπερασμένα Στοιχεία
- Αλγόριθμοι Επίλυσης και Υπολογιστικές Τεχνικές
- Στοχαστικά Πεπερασμένα Στοιχεία

ΤΕΧΝΟΛΟΓΙΚΗ ΔΡΑΣΤΗΡΙΟΤΗΤΑ

Σύμβουλος και Μελετητής ιδιωτικών και δημοσίων έργων. Ανάπτυξη κωδίκων πεπερασμένων στοιχείων για εταιρείες λογισμικού στην Ελλάδα και την Ευρωπαϊκή Ένωση:

- Μέλος της Διεθνούς Ομάδας Ανάπτυξης του LS – DYNA
- Sofistik Γερμανίας Προγράμματα Πολιτικού Μηχανικού
- Sofistik Ελλάς Προγράμματα Πολιτικού Μηχανικού
- Π – Systems, Ολοστατικά
- 4M-VK Προγράμματα Πολιτικού Μηχανικού
- CCS ΑΕ, Πρόγραμμα Instant Πολιτικού Μηχανικού
- ACE, Πρόγραμμα Scada Πολιτικού Μηχανικού
- ΕΛΒΟ, Ελληνική Βιομηχανία Οχημάτων. Βέλτιστος σχεδιασμός λεωφορείου
- ΕΑΒ, Ελληνική Αεροπορική Βιομηχανία. Αλληλεπίδραση πτέρυγας -αέρος
- ΕΡΤΕΚ ΑΕ, Βελτιστοποίηση ενός βιομηχανικά παραγόμενου συστήματος δόμησης
- Α.Γ.Πετζετάκις ΑΕ, Ανάλυση – Σχεδιασμός ελικοειδών σωλήνων HELIDUR SPIRAL

ΔΗΜΟΣΙΕΥΣΕΙΣ

Διεθνή Περιοδικά

1. **M. Papadrakakis**, A numerical study of the solution of the partial eigenvalue problem, J. of Sound and Vibration, 73, 353-362 (1980).
2. **Papadrakakis**, A method for the automatic evaluation of the dynamic relaxation parameters , Comp. Meth. Appl. Mech. Enging., 25, 35-48 (1980).
3. **M. Papadrakakis**, On the estimation of the optimum accelerator of SCOR for the eigenvalue problem, Comp. Meth, Appl. Mech. Enging., 14, 157-181 (1981).
4. **M. Papadrakakis**, Post-buckling analysis of spatial structures by vector iteration methods, Computers & Structures, 15, 393-402 (1981).
5. **M. Papadrakakis**, A family of methods with three-term recursion formulae, Int. J. Numer. Meth. Enging., 18, 1785-1799 (1982).
6. **M. Papadrakakis**, Inelastic dynamic response of cable networks, J. Struct. Div., ASCE, 109, 1139-1154 (1983).
7. **M. Papadrakakis**, Inelastic post-buckling analysis of trusses, J. Struct. Div., ASCE, 109, 2129-2147 (1983).
8. **M. Papadrakakis**, Solution of the partial eigenvalue problem by iterative methods, Int. J. Num. Meth. Enging., 20, 2283-2301 (1984).
9. **M. Papadrakakis** and L. Chrysos, Inelastic cyclic analysis of imperfect columns, J. Struct. Div. ASCE, 111, 1219-1234 (1985).
10. **M. Papadrakakis** and P. Ghionis, Conjugate gradient algorithms in nonlinear structural problems, Comp. Meth. Appl. Mech. Enging., 59, 11-27 (1986).
11. **M. Papadrakakis**, Accelerating vector iteration methods, J. Appl. Mech., ASME, 53, 291-297 (1986).
12. **M. Papadrakakis** and M. Yakoumidakis, On the preconditioned conjugate gradient method for solving $Ax-\zeta Bx=0$, Int. J. Num. Meth. Enging., 24, 1335-1366 (1987).
13. **M. Papadrakakis** and M. Yakoumidakis, A partial preconditioned conjugate gradient method for solving eigenproblems, Comp. Meth. Appl. Mech. Enging., 62, 195-207 (1987).
14. **M. Papadrakakis** and K. Loukakis, Elastic-plastic hysteretic behaviour of struts with imperfection, J. Engineering Structures, 9, 162-170 (1987).
15. **M. Papadrakakis** and K. Loukakis, Inelastic cyclic response of restrained imperfect columns, J. Eng. Mech., ASCE, 14, 295-313 (1987).

16. **M. Papadrakakis** and Ch. Gantes, Truncated Newton methods for nonlinear finite element analysis, *Computer & Structures*, 30, 705-714 (1988).
17. **Papadrakakis** and Ch. Gantes, Preconditioned conjugate and secant-Newton methods for nonlinear problems, *Int. J. Num. Meth. Enging.*, 28, 141-159 (1989).
18. **M. Papadrakakis** and S. Smerou, A new implementation of the Lanczos method in linear problems, *Int. J. Num. Meth. Enging.*, 29, 141-159 (1990).
19. **M. Papadrakakis**, A truncated Newton-Lanczos method for overcoming limit and bifurcation points, *Int. J. Num. Meth. Enging.*, 29, 1065-1077 (1990).
20. **M. Papadrakakis** and N. Nomikos, Automatic nonlinear solution with arc-length and Newton-Lanczos methods, *J. Engineering Computations*, 7, 48-56 (1990).
21. **M. Papadrakakis** and M. Dracopoulos, Improving the efficiency of preconditioning for iterative methods, *Computers & Structures*, 41, 1263-1272 (1991).
22. **M. Papadrakakis**, Computational strategies for tracing post-limit paths with pure iterative methods, *Int. J. Space Structures*, 6, 115-131 (1991).
23. **M. Papadrakakis** and A.P. Theoharis, Tracing post-limit-point paths with incomplete or without factorization of the stiffness matrix, *Comp. Meth. Appl. Mech. Enging.*, 88, 165-187 (1991).
24. **M. Papadrakakis** and M. Dracopoulos, A global preconditioner for the element-by-element solution methods, *Comp. Meth. Appl. Mech. Enging.*, 88, 275-286 (1991).
25. **M. Papadrakakis** and V. Balopoulos, Improved quasi-Newton methods for large nonlinear problems, *J. Eng. Mech.*, ASCE, 117,1201-1219 (1991).
26. **M. Papadrakakis** and S.A. Karamanos, A simple and efficient solution method for the limit elasto-plastic analysis of plane frames, *Computational Mechanics J.*, 8, 235-248 (1991).
27. **M. Papadrakakis** and M. Dracopoulos, Improving the efficiency of incomplete Choleski preconditionings, *Comm. Appl. Num. Meth.*, 7, 603-612 (1991).
28. **M. Papadrakakis** and N. Kalathas, On the Newton-Lanczos approach for solving nonlinear finite element problems, *Computers & Structures*, 44, 389-397 (1992).
29. **M. Papadrakakis**, H. Mouzakis, N. Plevris and S. Bitzarakis, A Lagrange multiplier solution method for pounding of buildings during earthquakes, *Earth. Eng. Struct. Dynamics*, 20, 981-998 (1991).
30. **M. Papadrakakis**, N. Bitoulas and K. Hatjikonstantinou, An effective superelement-by-superelement solution method for large finite element computations, *Computing Systems in Engineering*, 2, 535-540 (1991).
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32. **M. Papadrakakis** and G. Pantazopoulos, A survey of quasi-Newton methods with reduced storage, *Int. J. Num. Meth. Enging.* 36, 1573-1596 (1993).
33. **M. Papadrakakis** and G. Babilis, Solution techniques for the p-version of the adaptive finite element method, *Int. J. Num. Meth.* 37,1413-1431(1994).
34. **M. Papadrakakis**, Solution techniques for large-scale finite element analysis, *Int. J. Enging. Anal. & Design*, 1,43-60(1994).
35. N. Bitoulas and **M. Papadrakakis**, An optimized computer implementation of incomplete Cholesky factorization, *Computing Systems in Engineering*, 5(3),265-274(1994).
36. **M. Papadrakakis** and V. Papadopoulos, A computationally efficient method for limit elastoplastic analysis of space frames, *Computational Mechanics Journal* 16 (2), 132-141 (1995).
37. **M. Papadrakakis** and H.P. Mouzakis, Earthquake simulator testing of pounding between adjacent buildings, *Earthquake Engineering and Structural Dynamics* 24, 811-834(1995).
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39. **Papadrakakis M.** Apostolopoulou C. and Zacharopoulos A. (1996) "A three dimensional simulation of structural pounding during earthquakes", *J. of Engineering Mechanics, ASCE*, 122, (5), 423-431.

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41. **Papadrakakis M.** Papadopoulos V. and Lagaros N.D. (1996) "Structural reliability analysis of elastic-plastic structures using Neural Networks and Monte Carlo simulation", *Computer Methods in Applied Mechanics and Engineering*, 136, 145-163.
42. **Papadrakakis M.** Tsompanakis Y. Hinton E. and Sienz H. (1996) "Advanced solution methods in topology optimisation and shape sensitivity analysis", *Engineering Computations Journal*, 13, 57-90.
43. Bitzarakis S. **Papadrakakis M.** and Kotsopoulos A. (1997) "Parallel solution techniques in computational structural mechanics", *Computer Methods in Applied Mechanics and Engineering*, 148 (1-2), 75-105.
44. **Papadrakakis M.** and Bitzarakis S. (1997) "Domain decomposition PCG methods for serial and parallel processing", *Int. J. of Computer Assisted Mechanics and Engineering Sciences*, 4, 69-93.
45. **Papadrakakis M.** Babilis G. and Braouzi G. (1997) "Efficiency of refinement procedures for the p version of the adaptive finite element method", *Engineering Computations Journal*, 14 (1), 98-118.
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48. **Papadrakakis M.** Lagaros N.D. and Tsompanakis Y. (1998) "Structural optimization using evolution strategies and neural networks", *Computer Methods in Applied Mechanics and Engineering*, 156, 309-335.
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51. **Papadrakakis M.** and Tsompanakis Y. (1999) "Domain decomposition of shape sensitivity analysis problems", *International Journal for Numerical Methods in Engineering*, 44, 281-303.
52. **Papadrakakis M.** Lagaros N.D. and Tsompanakis Y. (1999) "Optimization of large-scale 3D trusses using Evolution Strategies and Neural Networks", *Int. Journal of. Space Structures*, 14 (3), 211-223.
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57. **Papadrakakis M.** Lagaros N.D. Tsompanakis Y. and Plevris V. (2001) "Large scale structural optimization: Computational methods and optimization algorithms", *Archives of Computational Methods in Engineering*, 8, 239-301.
58. **Papadrakakis M.** and Fragakis Y. (2001) "An Integrated Geometric-Algebraic Method for Solving Semi-Definite Problems in Structural Mechanics", *Computer Methods in Applied Mechanics and Engineering*, 190, 6513-6532.
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61. **Papadrakakis M.** Lagaros N.D. and Plevris V. (2002) "Multi-objective optimization of skeletal structures under static and seismic loading conditions", *Engineering Optimization Journal*, 34, 645-669.
62. Argyris J. **Papadrakakis M.** and Stefanou G. (2002) "Stochastic finite element analysis of shells", *Computer Methods in Applied Mechanics and Engineering*, 191(41), 4781-4804.
63. Lagaros N.D. **Papadrakakis M.** and Kokossalakis G. (2002) "Structural optimization using evolutionary algorithms", *Computers & Structures*, 80, 571-589 (2004), 429-440.
64. **Papadrakakis M.** Lagaros N.D. and Fragakis Y. (2003) "Parallel computational strategies for structural optimisation", *International Journal for Numerical Methods in Engineering*, 58, 1347-1380.
65. H. P. Mouzakis and **Papadrakakis M.** (2003) "Three dimensional nonlinear building pounding with friction during earthquakes", *Journal of Earthquake Engineering*.
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