CURRICULUM VITAE

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TITLE	:	Professor
DATE OF BIRTH		February 17, 1951
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EDUCATION

1974	:	Diploma in Mathematics, University of Athens, Greece
1983	:	Ph. D. in Mathematics, National Technical University of Athens, Greece

RESEARCH INTERESTS

Analytical methods in physics and engineering, Rayleigh Scattering and Kelvin inversion, Ellipsoidal harmonics and related problems, Mathematical models for composite materials, Integral Equations, Inverse scattering problems.

POSITIONS HELD

1976 - 1983	:	Teaching/Research Assistant, NTUA
1984 - 1989	:	Lecturer, NTUA
1989 - 1995	:	Assistant Professor, NTUA
Summer 1990	:	Visiting Assistant Professor, College of Engineering, University of Iowa, USA
1995 – 2003	:	Associate Professor, NTUA
2003-	-:	Professor, NTUA

TEACHING EXPERIENCE

Undergraduate Courses

Advanced Calculus, Linear Algebra, Ordinary Differential Equations, Partial Differential Equations, Complex Analysis, Integral Transforms.

Graduate Courses

Partial Differential Equations, Integral Equations.

TEXTBOOK AND LECTURE NOTES

1. "Partial Differential Equations" with G. Dassios (1994)
2. "Mathematical Analysis" with E. Adreou, G. Dassios, N. Kadianakis, C. Kokkinos and F. Zarifopoulos. Translation of the book "Advanced Calculus" by Louis Brand, Athens (1984).
3. "Partial Differential Equations" with A. Fellouris, C. Kokkinos and A. Papaioannou. Translation of the book "An Introduction to Partial Differential Equations" by G. Stephenson Athens (1985).
4. "Elementary Differential Equations and Boundary Value Problems" by W. E. Boyce and R. C. DiPrima, Scientific Advisor with K. Laskarides for the translation of the book (1999).

PUBLICATIONS

Ph.D Thesis :
"Elastic Wave Scattering in Low-Frequencies- Scattering by Triaxal Ellipsoids", Dept. of Mathematics, National Technical University of Athens, 1983. Thesis Advisor: G. Dassios.

JOURNALS

1. "The Low-Frequency Theory of Elastic Wave Scattering", *Quarterly of Applied Mathematics*, 42, 2, p. 225-248, 1984 (with G. Dassios).

2. "The Rigid Ellipsoid in the Presence of Low-Frequency Elastic Wave", *Quarterly of Applied Mathematics*, 43, 4, p. 435-457, 1986 (with G. Dassios).

3. "The Ellipsoidal Cavity in the Presence of a Low-Frequency Elastic Wave", *Quarterly of Applied Mathematics*, 44, p. 709-735, 1987 (with G. Dassios).

4. "Low-Frequency Scattering Theory of a Penetrable Body in an Elastic Medium", *Bulletin of the Greek Mathematical Society*, 23, pp. 33-53, 1983.

5. "On the Scattering Amplitudes for Elastic Waves", *ZAMP* 38, p. 856-873, 1987 (with G. Dassios and D. Polyzos).

6. "A Useful Application of Gauss Theorem", *Bulletin of the Greek Mathematical Society*, 28, p. 39-43, 1987 (with G. Dassios).

7. "Low Frequency Electromagnetic Scattering Theory for a Dielectric", *Bulletin of the Greek Mathematical Society*, 27, p. 47-59, 1986 (with C. Athanassiadis).

8. "Electromagnetic Scattering Theory for a Dielectric with a Perfect Conductor Core in Low-Frequencies", *Mathematica Balkanica*, New Series Vol. 2, p. 64-77, 1988 (with. C. Athanassiadis).

9. "The Low-Frequency Scattering Theory for a Penetrable Scatterer with an Impenetrable Core in an Elastic Medium", *Inter. Journal of Eng. Science* 26, p. 1143-1160, 1988 (with D. Polyzos).

10. "Low-Frequency Scattering by an Ellipsoidal Dielectric with a Confocal Ellipsoidal Perfect Conductor Core", *Mathematica Balkanica*, New Series, Vol. 3, p. 370-389, 1989 (with C. Athanassiadis).

11. "The Low-Frequency Expansions for a Penetrable Ellipsoidal Scatterer in an Elastic Medium", *Journal of Engineering Mathematics* 23, p. 295-314, 1989.

12. "The Inverse Scattering Problem for a Rigid Ellipsoid in Linear Elasticity" *Inverse Problems* Vol. 6, No 1, p. 1-9, 1990 (with T. Apostolopoulos and D. Polyzos).

13. "Low-Frequency Scattering by a Hard Inverse Prolate Spheroid in Acoustics" *Quart. J. of Applied Mathematics & Mechanics* 45, p. 231-244, 1992 (with D. Gintides).

14. "On the Continuity Dependence of Elastic Scattering Amplitudes upon the Shape of the Scatterer" *Inverse Problems* 8, p. 95-118, 1992 (with D. Gintides).

15. "Characterization of Functions as Radiation Patterns in Linear Elasticity" *Mathematical Methods in the Applied Sciences*, 15, pp. 547-558, 1992 (with A. Charalambopoulos).

16. "A Method for Solving the Inverse Elastic Scattering Problem via Low-Frequency Moments, *Wave Motion*, 18, p. 213-226, 1993 (with A. Charalambopoulos).

17. "Scattering Theorems for Complete Dyadic Fields" *Inter. Journal of Eng. Science*, 33, 2, p. 269-277, 1995 (with G. Dassios and D. Polyzos).

18. "Low-Frequency Scattering of Coated Spherical Obstacles", *Journal of Engineering Mathematics*, 31, pp. 379-395, 1997 (with M. Valavanides and D. Polyzos) .

19. "A Modified Green's Function Technique for the Exterior Dirichlet Problem in Linear Elasticity", *Quart. J. of Applied Mathematics & Mechanics,* 52 p. 275-295, 1998 (with E. Argyropoulos and G.F. Roach).

20. "A Spectral Theoretic Approach for the Solution of Maxwell's Equations in Stratified Media", *Mathematical Methods in the Applied Sciences,* 21, p. 685-700, 1998 (with C. Athanasiadis and I. Stratis).

21. "Electromagnetic Wave Propagation in Stratified Media and an Application to the Magnetotelluric Problem", *Mathematica Japonica*, 47, No.3, p. 405-416, 1998, (with C. Athanasiadis and I. Stratis).

22. "Computation of Light Scattering by Axisymmetric Non-Spherical Particles and Comparison with Experimental Results", *Applied Optics*, 37, 3, p. 7310-7319, 1998 (with D. Gintides, G. Konstadinides, S. Kattis, C. Paraskeva, A. Payatakes, D. Polyzos, S. Tsinopoulos and S. Giannopoulos).

23. "The Inverse Scattering problem for Dielectric Bodies", *Applicable Analysis*, 70, (3-4), pp. 385-403, 1999, (with D. Gintides).

24. "A Criterion of Optimization of a Modified Green's Function in Linear Elasticity", *Inter. Journal of Eng. Science*, 37, p. 1441-1460, 1999 (with E. Argyropoulos).

25. "A Uniquely Solvable Integral Equation for the Neumann Problem in Linear Elasticity", *Applicable Analysis*, 73, p. 379-392, 1999.

26. "Scattering of Electromagnetic Radiation by Ellipsoidal Particles and Applications", *II Nuovo Cimento B,* 115, 4, p. 351-368, 2000 (with T. Grammenos).

27. "The Far-Field Equations in Linear Elasticity-An Inversion Scheme", *ZAMM*, 80, p. 1-12, 2000 (with D. Gintides).

28. "Integral Equation Methods in Obstacle Elastic Scattering". *Bulletin of the Greek Math. Soc.*, Vol. 45, p. 57-69, 2001 (with V. Sevroglou).

29. "An Exterior Mixed Boundary Value Problem for the Helmholtz Equation", *Bulletin of the Greek Math. Soc.*, Vol. 45, p. 43-55, 2001 (with Z. Rapti).

30. "On the Uniqueness of the Inverse Elastic Scattering problem for Periodic Structures", *Inverse Problems*, 17, pp. 1-13, 2001 (with A. Charalambopoulos and D. Gintides).

31. "The Far-Field Equations in Linear Elasticity for Disconnected Rigid Bodies and Cavities". *J. Comp. Anal. and Applications*, Vol. 4, No 3, p.193-209, 2002 (with D. Gintides).

32. "On the Condition Number of Integral Equations in Linear Elasticity Using Modified Green's Function, *ANJIAM J.*, 44, p. 1-16, 2002 (with E. Argyropoulos and D. Gintides).

33. "Radiation Conditions for Rough Surfaces in Linear Elasticity", *Quart. J. of Applied Mathematics & Mechanics*, 55 (3), p. 421-441, 2002 (with A. Charalambopoulos and D. Gintides).

34. "The Linear Sampling Method for the Transmission Problem in Three – Dimensional Linear Elasticity", *Inverse Problems*, 18, pp. 547-558, 2002 (with A. Charalambopoulos and D. Gintides).

35. "Modified Green's Function Technique for Disjoint Bodies in Two-dimensional Linear Elasticity", *Bulletin of the Greek Mathematical Society*, (with E. Argyropoulos).

36. "The Linear Sampling Method for non-absorbing Penetrable Elastic Bodies", *Inverse Problems, 19 (3)*), p. 549-561, 2003 (with A. Charalambopoulos and D. Gintides).

37. "The Green's Function for the Three-Dimensional Linear Elasticity in Periodic Domains", *Bulletin of the Greek Mathematical Society*, Vol. 52, p. 35-47, 2006 (with K. Anestopoulos, E. Argyropoulos and D. Gintides).

38. "The Factorization Method in Inverse Elastic Scattering from Penetrable Bodies", *Inverse Problems,* 19, p. 549-561, 2007 (with K. Anagnostopoulos, A. Charalambopoulos, D. Gintides and A. Kirsch,).

39. "Identification of Planar Screens at Low Frequencies in Thermoelasticity", *Journal of Computational Analysis and Applications*, Vol. 10, p.83-100, 2008 (with D. Gintides).

40. "Critical Parameters Determining Standard Radiotherapy Treatment Outcome for Glioblastoma Multiforme: A Computer Simulation", *The Open Biomedical Engineering Journal*, 2, p. 43–51, 2008 (with Dionysiou, D. Gintides, G. Stamatakos and N. Uzunoglu).

PUBLICATIONS IN SPECIAL ISSUES

1. "Inverse Thermoelastic Rayleigh Scattering by a Rigid Ellipsoid", *Workshop on Inverse Problems*, Ross Priory, Pitman Research Notes in Mathematics Series, p. 49-67, 1991 (with G. Dassios and V. Kostopoulos).

2. "Size, Orientation and Thickness Identification of an Ellipsoidal Shell", *Workshop on Inverse Problems*, Ross Priory, Pitman Research Notes in Mathematics Series, p. 38-48, 1991 (with G. Dassios).

3. "Multiple Scattering of Elastic Waves by Sphere Configurations", *Research Notes on Mathematics Series,* Pitman, p. 201-214, 1998(with . D. Gintides)

4. "Particle Shape and Size Analyzer**"**, *Research Notes on Mathematics Series*, Pitman, p. 65-79, 1998. (with C.A. Paraskeva, A.C. Payatakes, D. Polyzos, S.V. Tsinopoulos and S.N. Yannopoulos)

5. "On Herglotz Functions in Two-Dimensional Linear Elasticity", *Methods in Scattering Theory and Biomedical Technology*, *World Scientific*, p. 151-158, 2000 (with V. Sevroglou).

6. "On the Far-field Operators for Mixed Scattering Problems in Linear Elasticity", *Methods in Scattering Theory and Biomedical Technology*, World Scientific Publishing, p. 61-67, 2001(with D. Gintides).

7. "On the Interior Transmission Problem in Linear Elasticity**",** *Methods in Scattering Theory and Biomedical Technology*, World Scientific Publishing, p. 194-202, 2001(with A. Charalambopoulos, D. Gintides).

8. "The Linear Sampling Method for N-Bodies in 2-Dimensional Linear Elasticity", *Methods in Scattering Theory and Biomedical Technology*, World Scientific Publishing, p. 126-135, 2003(with A. Charalambopoulos, D. Gintides).

9. "The Factorization Method for an Acoustic Waveguide**"**, *Mathematical Methods in Scattering Theory and Biomedical Engineering,* World Scientific Publishing, p. 120-127, 2006 (with A. Charalambopoulos, D. Gintides and A. Kirsch).

10. "The Detection of Point Scatterers in a Waveguide**"**. *Advanced Topics in Scattering and Biomedical Engineering*, World Scientific Publishing, p. 38-46, 2008(with D. Gintides, A. Lygidaki and L. Midrinos).

1. **CONFERENCES**

1. "Normalized Amplitudes and Energy Cross-Section in the Scattering Theory for Elastic Waves", *National Meeting of the I.U.T.A.M.* Athens, 1983 (with G. Dassios).

2. "Reduction of Elastic Scattering Problems to Potential Theory", *Seventh Balkan Congress in Mathematics*, Athens, 1983 (with G. Dassios).

3. "Reciprocity Relations for Scattering Amplitudes in Linear Elasticity", *First National Congress of I.U.T.A.M.* Athens, 1986 (with D. Polyzos).

4. "The Low-Frequency Scattering Theory for a Penetrable Scatterer with a Penetrable Core in an Elastic Medium", *Second National Congress of I.U.T.A.M.* Athens, 1989 (with D. Polyzos).

5. "Rayleigh Inverse Scattering for Polynomial Scatterers in Linear Elasticity", *Second National Conference in Mathematical Analysis*, Athens 1992 (with A. Charalambopoulos).

6. "Continuity Dependence of Scattering Amplitudes upon the Shape of the Scatterer in Two-dimensional Linear Elasticity", *Second National Conference in Mathematical Analysis*, Athens 1992 (with D. Gintides).

7. "Scattering of an Elastic Wave by an Elastic Body with an Elastic Core", *2nd Workshop on Wave Propagation Problems*, Forth, Heraklion, 1992 (with G. Dassios and D. Polyzos).

8. "Low-Frequency Electromagnetic Scattering for Non-convex Bodies", *IEEE-APS/U.R.S.I./NEM Meeting*, Chicago, 1992 (with R. Kleinman and D. Gintides).

9. "The Inverse Elastic Scattering via Low-Frequency Moments", *Workshop on Direct and Inverse Scattering Methods*, Athens, 1993.

10. "The Ellipsoidal Cavity in the Presence of a Low Frequency Thermoelastic Wave", *Second Int. Conf. on Mathematical and Numerical Aspects of Wave Propagation, SIAM*, pp. 286-295, Delaware 1993 (with V. Kostopoulos)

11. "The Modified Green Function for Exterior Problems in Linear Elasticity", *Symposium on Applications of Mathematical Analysis in Mechanics*, Thessaloniki, 1993 (with D. Gintides).

12. "An Inverse Electromagnetic Scattering Problem", *3rd Hellenic-European Conference on Mathematics and Informatics* , Athens , Greece, 1996, (with D. Gintides).

13. "Shape Analyser of Non-Spherical Bodies " *1ˢᵗ National Conference of Chemical Engineering*, 1997 (with G. Constadinides, S. Giannopoulos, D. Gintides, S. Kattis, C. Paraskeva, A. Payatakes, D. Polyzos, S. Tsinopoulos).

14. "The Inverse Scattering Problem for Dielectric Bodies-An Application to shape and Refractive Index Analyzer", *PIERS 98 Progress in Electromagnetics Research Symposium*, Nantes, France, 1998, (with D. Gintides, G. Constadinides, S. Giannopoulos, S. Kattis, C. Paraskeva, A. Payatakes, D. Polyzos, S. Tsinopoulos).

15. "The Far-Field Equation Method of Inverse Scattering in Linear Elasticity", *5ᵗʰ National Congress on Mechanics*, Ioannina, Greece, 1998 (with D. Gintides).

16. "Far-field Patterns Equations in Linear Elasticity-A Method for Solving Inverse Scattering Problem", *7ᵗʰ National Congress of Mathematical Analysis*, Cyprus, 1999 (with D. Gintides).

17. "Radiation Conditions for Rough Surfaces with Dirichlet Boundary Conditions in Linear Elasticity", *Math. Analysis and its Applications*, Athens, Greece, 2000 (with A. Charalambopoulos and D. Gintides).

18. "The Far-Field Equations in Two-Dimensional Linear Elasticity", *Math. Analysis and its Applications*, Athens, Greece, 2000 (with V. Sevroglou).

19. «The Linear Sampling Method for the Inverse Elastic Scattering Problem", 9th *National Conference in Mathematical Analysis*, Chania, Greece, 2002 (with A. Charalambopoulos and D. Gintides).

20. "The Inverse Scattering Problem for a Cavity in a Three Dimensional Elastic Half Space*", Influence of Traditional Mathematics and Mechanics on Modern Science and Technology*, Messini, 2004 (with A. Charalambopoulos, D. Gintides).
21. , **"**The Inverse Scattering Problem in an Acoustic Waveguide", *11ⁿᵈ PanHellenic Conference on Mathematical Analysis,* Athens, 2004(with A. Charalambopoulos, D. Gintides and A. Kirsch)
22. , "Inverse Boundary Value Problem in Linear Static Elasticity", *12ⁿᵈ PanHellenic Conference on Mathematical Analysis*, Athens, 2008 (with D. Gintides and R. Kress).

DEPARTMENTAL REPORTS

1. "*Radar Backscattering by Ellipsoidal Rain Drops*", IIHR Limited Distribution Report No. 219, Iowa Institute of Hydraulic Research, The University of Iowa, Iowa City, Iowa, p. 1-56, 1994 (with W. F. Krajewski).

2. "*Modified Green's Function Techniques for Exterior Problems in Elasticity*", Depart. Report No. 5, Strathclyde University, p. 1-26, 1994 (with G. F. Roach and with D. Gintides).

PH. D. THESIS SUPERVISION

1. "Mixed Boundary Value Problems: Low-frequency Scattering in Electromagnetic Waves", C. Athanasiadis, Dept. of Mathematics, University of Athens, 1988.

2. "Elastic Wave Propagation in Composite Materials-Determination of their Dynamical Properties", D. Polyzos, Dept. of Mechanical Engineering, University of Patras, 1988.

3. "Inverse Scattering via Low-frequency Moments", A. Charalambopoulos, Dept. of Mathematics, National Technical University of Athens, 1992.

4. "Inverse Elastic Scattering for the Determination of Star-shaped Bodies", D. Gintides, Dept. of Mathematics, National Technical University of Athens, 1992.

5. "The Modified Green's Function Technique in Linear Elasticity", E. Argyropoulos, Dept. of Mathematics, National Technical University of Athens, 1997.

6. "The Herglotz Functions in Two-Dimensional Linear Elasticity-Applications in Inverse Scattering Problems", V, Sevroglou, Dept. of Mathematics, National Technical University of Athens, 2001.

7. "Low Frequency Expansions in Two Dimensional Elasticity", K. Anestopoulos, Dept. of Mathematics, National Technical University of Athens, 2006.

GRANTS

1. "Scattering and Energy Behaviour of Wave Fields in Continuum Mechanics", (in collaboration with G. Dassios). Greek Ministry of Research and Technology, 1984.

2. "Problems in the Propagation and Scattering of Waves by a Free Surface in Continuum Media", (in collaboration with G. Dassios and G. Athanassoulis) Greek Ministry of Research and Technology, 1987.

3. "Direct and Inverse Scattering Problems with Applications to Artificial Intelligence, Robot Vision and the Study of Composite Materials", (in collaboration with Howison, Martin, Dassios, Kostopoulos, Polyzos) EEC-Science, 1988.

4. "Scattering and Energy Behaviour of Wave Fields in the Theory of Continuum Media", (in collaboration with G. Dassios) Greek Ministry of Research and Technology, 1989.

5. "Development of Methods of Solutions of Wave Problems in Marine Environments. Direct and Inverse Problem", (in collaboration with G. Dassios) Greek Ministry of Research and Technology, 1990.

6. "Development of Solution Techniques for Inverse Scattering Problems. Applications in Advanced Technologies", (in collaboration with Dassios, Athanassoulis, Apostolopoulos, Kostopoulos, Polyzos, Grillakis, Tzavaras) Greek Ministry of Research and Technology, 1991.

7. "Multiple Scattering for Acoustic, Electromagnetic and Elastic Media", Greek Ministry of Research and Technology, 1996.

8. "New Instruments for Diagnosis In-Time and Biotechnological Applications", Greek Ministry of Research and Technology, 1995.

9. "The Inverse Scattering Problem-Applications to Biomedical Technology", Archimides, (in collaboration with C. Nikita), National Technical University of Athens, 2000.

10. "The Inverse Scattering Problem for Infinite Surfaces – Location of Buried Bodies", Thales, National Technical University of Athens, 2002.

11. "Genomic Expansion and Mathematical Formalism Four-Dimensional Simulation Model for the Development of Cancer Tumors and their Response to Radiotherapy (Group: In Silico Oncology), Pythagoras II, NTUA, 2005.

12. "The Factorization Method for Detecting Objects in Acoustic Waveguides and Elastic Media", Hellenic– German Cooperation, IKYDA, 2005.