

CURRICULUM VITAE

PANAGIOTIS J. PAPADAKIS

Personal:

Born September 21, 1959 in Rhodes, GREECE. Resident of Heraklion Crete for more than 20 years with his wife and five children.

Current Position:

- **Senior Scientist** at the Institute of Applied and Computational Mathematics of the Foundation for Research and Technology-Hellas (FORTH/IACM).
- **Lecturer** in the Technological Applications Department of the Technological Education Institute, Heraklion Crete, GREECE.
- **In charge** of the *Underwater Acoustic Measurements Laboratory* at the Institute of Applied and Computational Mathematics

Education:

- *University of Crete, Department of Mathematics* (1977-1981). Diploma in Mathematics.
- *University of Rhodes Island (U.S.A.), Department of Mathematics* (1981-1984). Master in Mathematics.
- *University of Maryland (U.S.A.), Department of Mathematics* (1985-1989). Ph.D. in Applied Mathematics.

Professional Interests:

- Numerical Analysis with applications to Elasticity problems.
- Ordinary and Partial differential equations. Boundary value problems.
- Wave propagation theory.
- Underwater acoustics - Inverse problems. Sea-floor reconstruction.
- Planning, executing and analyzing experiments (Hydroacoustics measurements, calibration etc.)
- Bioacoustics

Professional Experience:

Applications Research Scientist: (1990-)

- Foundation for Research and Technology-HELLAS. Institute of Applied and Computational Mathematics Heraklion, Crete, Greece.
- Member of the Wave Propagation Group of the Institute.
- In charge of the *Underwater Acoustic Measurements Laboratory*.
- Development of new theoretical and numerical schemes for underwater acoustic propagation modelling.
- Inverse problems. Emphasis in sea-floor reconstruction using reflection coefficient measurements.
- Design and perform acoustic experiments and measurements at the Laboratory and at sea.
- Participation in EU/MAST and National projects in the field of wave propagation and underwater acoustics.

Lecturer: (1993-)

Technological Education Institute, Department of Technological Applications. I taught and still teach the following courses:

1. Mathematics I (Calculus and Analytic geometry)
2. Mathematics II (Differential equations)
3. Applied Mathematics (Linear Algebra, Numerical Analysis, Laplace transform)
4. Probability theory and Introduction to Statistics

Lecturer: (1990-1993)

University of Crete, Department of Mathematics. I taught the following courses:

1. Calculus I.
2. Numerical solution of Ordinary Differential Equations.
3. Approximation Theory with Applications.

Teaching Assistant:

University of Maryland (1986-1989)

University of Rhode Island USA (1981-1984)

Research Assistant:

University of Maryland (1985)

Research Projects (Last 15 Years)

International (EU funded) :

- MAST/ACID
- MAST-2/REBECCA
- Int. Cooperation ACUSTICA
- SIGMA
- REBECCA
- DAMOCLES

National

- Wave phenomena in the sea (General Secretariat for Research and Technology -GSRT)
- Network for Ocean Acoustic Technology (THALATTA)
- Support of research teams in TEI (ARHIMIDIS II)
- Support of research teams in TEI (ARHIMIDIS III)

Bilateral Cooperation

- Greece-France cooperation program 2001-2003. Project title: **Experimental validation of Acoustic methods for the characterization of the sea-floor.** (General Secretariat for Research and Technology -GSRT)
- Greece-France cooperation program 2004-2006. Project title: **Validation of shallow water long range acoustic propagation models with laboratory experiments.** (General Secretariat for Research and Technology -GSRT)

Participation in Scientific Conferences

- 19th International Conference on Acoustical Imaging, Bochum Germany 1991
- European Conference on Underwater Acoustics, Luxembourg, 1992.
- International Conference on Acoustics Sensing and Imaging, London 1993
- 2nd European Conference on Underwater Acoustics, Copenhagen, Denmark, 1994

- *22nd International Conference on Acoustical Imaging*, Florence Italy 1995
- *3rd European Conference on Underwater Acoustics*, Heraklion, Crete, June 1996.
- *23rd International Conference on Acoustical Imaging*, Boston USA 1997
- *4th European Conference on Underwater Acoustics*, Rome, Italy September 1998.
- *ACOUSTICS 1998*, Athens 1998
- *5th European Conference on Underwater Acoustics*, Lyon, July 2000.
- *6th European Conference on Underwater Acoustics*, Gdansk, Poland, June 2002.
- *ACOUSTICS 2002*, Patras 2002
- *7th European Conference on Underwater Acoustics*, Delft, Netherlands, July 2004.
- *ACOUSTICS 2004*, Thessaloniki 2004
- *8th European Conference on Underwater Acoustics*, Carvoeiro, Portugal July 2006
- *ACOUSTICS 2006* Heraklion 2006
- *2nd International Conference on Underwater Acoustic Measurements: Technologies & Results* Heraklion 2007
- *8th International Conference on Theoretical and Computational Acoustics* Heraklion 2007
- *9th European Conference on Underwater Acoustics*, Paris, France 2008
- *ACOUSTICS 2008* Xanthi 2008
- *10th European Conference on Underwater Acoustics*, Istanbul, Turkey, 2010
- *ACOUSTICS 2010* Athens 2010
- *11th European Conference on Underwater Acoustic* Edinburgh, UK, 2012
- *1st International Conference and Exhibition on Underwater Acoustics, Corfu, Greece 2013*

Other Academic Activities

- Co-organizer of the Advanced Course on Acoustical Oceanography (1993).
- Co-organizer of the 3rd European Conference on Underwater Acoustics (1996).
- Co-organizer of the International Conference on Underwater Acoustic Measurements: Technologies and Results (2005)
- Co-organizer of the Second International Conference on Underwater Acoustic Measurements: Technologies and Results (2007)
- Co-organizer of the 8th International Conference on Theoretical and Computational Acoustics (2007)

PUBLICATIONS

Thesis work

Papadakis P.J.: Computational aspects of the determination of the stress intensity factors for Two Dimensional Elasticity Ph.D. thesis University of Maryland, College Park, MD USA (1989)

Journal Papers

1. P.J.Papadakis, I. Babuska: ***A procedure for the determination of certain quantities related to the stress intensity factors in Fracture Mechanics.*** Computer Methods in Applied Mechanics and Engineering 122(1995) 69-92
2. Papadakis J.S., Taroudakis M.I., Papadakis P.J. and Mayfield Betty: ***A New Method for a Realistic Treatment of the Sea Bottom in the Parabolic Approximation.*** Journal of the Acoustical Society of America, Vol. 92, pp 2030-2038 (1992).
3. Bjorno L., Papadakis J.S., Papadakis P.J., Sageloli, J., Sessarego J.P., Sun S. and Taroudakis M.I. ***Identification of Seabed Data from Acoustic Reflections: Theory and Experiment.*** ACTA ACUSTICA, Vol 2, pp. 359-374 (1994).

4. Papadakis P.J, Bjorno L., Sessarego J.P. and Taroudakis M.I. ***A non-linear inversion method for recovering the properties of a multi-layered elastic bottom: A laboratory experiment.*** ACTA ACUSTICA, Vol 89, pp. 614-624 (2003).
5. P Papadakis, M Taroudakis, F Sturm, P Sanchez, JP. ***Scaled Laboratory Experiments of Shallow Water Acoustic Propagation: Calibration Phase*** Acta Acustica united with Acustica, Volume 94, Number 5, pp. 676-684(2008)
6. Papadakis, Panagiotis; Taroudakis, Michael; Sessarego, Jean-Pierre; Sanchez, Patrick. ***Estimation of some geoacoustic parameters of a tank experiment by match field processing.*** The Journal of the Acoustical Society of America, vol. 123, issue 5, p. 3601 (2008). (Abstract only. Presented at 9th European Conference on Underwater Acoustics, Paris France.)
7. Panagiotis Papadakis I. and George Piperakis S. ***Localization Experiments with two Different Configurations in an Artificial Water Depository,*** Acoustics in Practice, Vol2, No. 2, pp. 29-36 (2014)
8. Panagiotis I. Papadakis, George S. Piperakis and Michael A. Kalogerakis, ***Reflection of a plane wave from a two-layered seafloor with non-parallel interface between the layers,*** J. Acoust. Soc. Am. 137 (2), pp. 1001-1011 (2015)

Publications in Conference Proceedings

1. Ταρουδάκη Μ.Ι., Παπαδάκη Π.Ι. και Τζανετόπουλου Γ.: ***Εκτίμηση της δομής τρισδιάστατων δινών στο θαλάσσιο περιβάλλον με χρήση μεθόδων Ακουστικής Τομογραφίας.*** Πρακτικά 2ου Συνεδρίου Περιβαλλοντικής Επιστήμης και Τεχνολογίας , Μόλυβος, σελ 581-591 (1991) (IN GREEK)
2. Papadakis J.S., Papadakis P.J. and Pelloni B.: ***Treatment of a sloping bottom with an impedance condition incorporated in the parabolic approximation*** in Proceedings of the 2nd Workshop on Wave Propagation Problems. pp 75-84 (1992).
3. Taroudakis M.I., Papadakis P.J., Papadakis J.S. and E. Simantiraki: ***On the Estimation of the Bottom Geoacoustic Parameters, Using Measurements of Plane Wave Reflection Parameters*** Acoustical Imaging Vol 19 edited by H Ermert and H.-P.Harjes, Plenum Press, New York, pp 841-846 (1992).
4. Papadakis J.S., Papadakis P.J., Taroudakis M.I., Sessarego J.P. and Sageloli J. ***Using Acoustic Reflection Data to Reconstruct the Ocean Bottom Structure,*** in European Conference on Underwater Acoustics edited by M.Weydert, Elsevier Applied Sciences, London, pp 539-542 (1992).
5. Papadakis J.S, Taroudakis M.I and Papadakis P.J.: ***Study of the Convergence of an Iterative Scheme Used in Ocean Acoustic Tomography,*** Computational Acoustics - Volume 2 edited by D.Lee, A.R.Robinson and R. Vichnevetsky, Elsevier Science Publishers, Amsterdam, pp 63-77 (1993).
6. P.J. Papadakis, J.S. Papadakis, M.I. Taroudakis and M. Tsachnopoulou: ***Ocean Bottom Recognition From Acoustic Reflection Data,*** Acoustic Sensing and Imaging, Conference publication No. 369 IEE London pp. 217-222 (1993).
7. Papadakis P.J., Taroudakis M.I. and Papadakis J.S. ***Recovery of the Properties of an Elastic Bottom Using Reflection Coefficient Measurements,*** in 2nd European Conference on Underwater Acoustics edited by Leif Bjorno, pp 943-948 (1994).
8. Papadakis P.J., Carr B., ***Sea Bottom Characterization by Acoustic means: Oblique Incidence,*** Acoustical Imaging Vol 22, Edited by P.Tortoli and L.Massoti Plenum Press, New York, pp. 595-600 (1996)
9. Taroudakis, M.I., Papadakis, P.J and Sklavos, S. ***Bottom Characterization Using Parametric Array Data,*** in Proceedings of the 3rd European Conference on Underwater Acoustics , edited by J.Papadakis, pp 625-630 (1996).

10. Papadakis P.J. and Piperakis G.S. *An inverse procedure for the reconstruction of a sea bottom consisting of two elastic materials*, in Proceedings of the 3rd European Conference on Underwater Acoustics , edited by J.Papadakis, pp 619-624 (1996).
11. Papadakis P.J., *Inversion of Acoustic Reflection Data for Sea-Bottom Reconstruction*, Acoustical Imaging, Vol. 23 pp 531-536 (1997)
12. Papadakis P.J. and Mizeraki H. *Plane Acoustic Wave Reflection from a Hybrid Sea-Floor*, Presented at the 4th European Conference on Underwater Acoustics, Rome (1998).
13. B.Woodward, J.C. Cook, A.D. Goodson, P.A. Lepper, A.L. Vyas, V.S. Balaji-Raj, M.I. Taroudakis, P.J. Papadakis and G.S. Piperakis. *Acoustic Characterisation of Undersea sediments to Initiate Commercial Applications (ACUSTICA)*, in Proceedings of the 4th European Conference on Underwater Acoustics , edited by A.Alippi and G.B. Cannelli, pp 359-364 (1998)
14. Taroudakis M., Papadakis P.J. and Markaki M. *Alternative Methods for Sea-Bed Reconstruction Using Acoustic Data at an Array of Hydrophones*, Συνέδριο Ακουστικής 98, Αθήνα Δεκέμβριος (1998). (IN GREEK)
15. Papadakis P.J. *The reflection coefficient for a two-layer sea floor with downward sloping interface between the layers*, in Proceedings of the Fifth European Conference. Lyon France, pp 221-226, (2000).
16. Papadakis P.J, Mizeraki H. *Reflection of acoustic waves from a two layered sea floor with oblique interface*, in Proceedings of the Sixth European Conference on Underwater Acoustics, edited by A. Stepanowski, pp. 31-36, (2002).
17. Παναγιώτης Παπαδάκης. *Ανάκλαση Ακουστικών Κυμάτων Από Θαλάσσιο Πυθμένα Δύο Στρωμάτων Με Επικλινή Διεπιφάνεια* Ακουστική 2002, Πάτρα. (IN GREEK)
18. Panagiotis Papadakis, Augustin Aubret and Julien Clerget *On the local nature of the reflection of acoustic waves from a two-layered sea floor with oblique interface. Part I: Theoretical considerations* in Proceedings of the Seventh European Conference on Underwater Acoustics, edited by Dick G. Simmons pp. 571-576, 2004
19. Panagiotis Papadakis, Jean Pierre Sessarego and Patrick Sanchez *On the local nature of the reflection of acoustic waves from a two-layered sea floor with oblique interface. Part II: Experimental validation* in Proceedings of the Seventh European Conference on Underwater Acoustics, edited by Dick G. Simmons pp. 577-582, 2004
20. Παναγιώτης Παπαδάκης. *Μελέτη της ανάκλασης ακουστικών κυμάτων από πυθμένα με επικλινή διεπιφάνεια*. Ακουστική 2004, Θεσσαλονίκη. (IN GREEK)
21. P. Papadakis, M. Taroudakis, P. Sanchez, J.-P. Sessarego. *Scaled Laboratory Experiments of Shallow Water Acoustic Propagation*. In Proceedings of Forum Acusticum 2005, pp. 287-292 (2005).
22. Papadakis P. *Experimental Procedures for the calculation of the reflection coefficient for seafloor models with oblique interface between layers* In proceedings of the International Conference “Underwater Acoustic Measurements: Technologies & results” pp. 717-722 (2005).
23. Papadakis P., Taroudakis M., Sanchez P., Sessarego J.-P. *Time and frequency measurements using scaled laboratory experiments of shallow water acoustic propagation*. In Proceedings of the 8th European Conference on Underwater Acoustics 2006, Carvoeiro, pp 453-458, (2006).
24. Π. Παπαδάκης και Μ. Ταρουδάκης *Εργαστηριακά πειράματα Υπολογισμού του Ακουστικού πεδίου σε ρηχή θάλασσα και μεγάλη απόσταση*. Πρακτικά Συνεδρίου Ακουστική 2006, σ. 391-398 (2007) (IN GREEK)
25. Σ. Κουζούπη, Π. Παπαδάκης, Α. Καρούζου, Β. Μπούρα, Ι. Ξεζωνάκης , Ρ. Divanach, Μ. Κεντούρη, *Η παραγωγή ήχων από δύο εκτρεφόμενα είδη Ψαριών (Sparus Aurata, Dicentrarchus Labrax)*. Πρακτικά Συνεδρίου Ακουστική 2006, σ. 409-416 (2007). (IN GREEK)

26. Kouzoupis S, Papadakis P., Boura V., Xezonakis I., Kentouri M. ***Preliminary investigation on the sound production of two fish species: Sparus aurata and Dicentrarchus labrax.*** In proceedings of the 4th International conference on Bio-Acoustics, Proceeding of the Institute of Acoustics, Vol 29. Pt.3, pp 225-232, (2007).
27. Papadakis P., Taroudakis M., Sanchez P., Sessarego J.-P, ***Identification of normal mode arrival times using data from a laboratory experiment.*** In proceedings of the 2nd International Conference on Underwater Acoustic Measurements: Technologies & Results. pp. 1163-1168 (2007).
28. Papadakis P. and Taroudakis M.: ***Estimation of Sea-Floor parameters by modal arrival measurements using data from a laboratory experiment*** Proceedings of the ICA07, CDR0M edition, Madrid (2007).
29. Σ. Κουζούπης, Π. Παπαδάκης, ***Φυσική μοντελοποίηση της παραγωγής του ήχου από την νηκτική κύστη ψαριού του είδους Sparous aurata.*** Πρακτικά Συνεδρίου Ακουστική 2008, 332-340 (2009). (IN GREEK)
30. Π. Παπαδάκης και Μ. Ταρουδάκης, ***Εκτίμηση κρίσιμων παραμέτρων σε εργαστηριακά πειράματα ακουστικής διάδοσης σε νερό με μεθόδους αντιστροφής πεδίου.*** Πρακτικά Συνεδρίου Ακουστική 2008, 356-364 (2009). (IN GREEK)
31. S. Kouzoupis, P.Papadakis, ***Modeling of the swimbladder sound producing mechanism of the European sea bass (Sparus aurata).*** In Proceedings of the 10th European Conference on Underwater Acoustics 2010, pp. 15-21 (2010).
32. P. Papadakis, C. Smaragdakis, M. Taroudakis, A. Tolstoy, ***Hybrid inversion techniques for geoacoustic inversion.*** In Proceedings of the 10th European Conference on Underwater Acoustics 2010, pp. 199-206 (2010).
33. Panagiotis Papadakis, George Piperakis, ***Instrument testing and localization experiments in an artificial depository.*** In Proceedings of the 10th European Conference on Underwater Acoustics 2010, pp. 1209-1216 (2010).
34. Π. Παπαδάκης και Γ. Πιπεράκης. ***Πειράματα εντοπισμού στη Αιμνοδεξαμενή Γέργερης.*** Πρακτικά Συνεδρίου Ακουστική 2010, 561-568 (2011). (IN GREEK)
35. Σ. Κουζούπης και Π. Παπαδάκης. ***Παραγωγή ήχου από ψάρια που φέρουν νηκτική κύστη: Παραμετρική ανάλυση μοντέλου.*** Πρακτικά Συνεδρίου Ακουστική 2010, 586-593 (2011). (IN GREEK)
36. S. Kouzoupis, and P. Papadakis, ***Comparison of three swimbladder sound production mechanism models,*** In proceedings of the 11th European Conference on Underwater Acoustics ECUA, pp 510-517, (2012).
37. Τριπολιτάκη Ζαμπία, Δασκαλάκη Νικολία, Κουζούπης Σπύρος και Παπαδάκης Παναγιώτης ***Καταγραφή του ήχου ψαριών σε μικρά ενδρεία και τα χαρακτηριστικά του ήχου σε σχέση με τον μηχανισμό παραγωγής του.*** Πρακτικά Συνεδρίου Ακουστική 2012, 295-302 (2012). (IN GREEK)
38. P. Papadakis, S. Kouzoupis , G. Piperakis, ***On The Generation Of Short Ultrasonic Pulses In Medium Size Tanks*** In proceedings of the 1st International Conference and Exhibition on Underwater Acoustics, pp 943-950 (2013).
39. Spyros Kouzoupis. Panagiotis Papadakis and George Piperakis, ***Preliminary Investigation On The Potential Of Using Low Power Ultrasound To Induce Low Frequency Vibrations On An Immersed Object,*** In proceedings of the 2nd International Conference and Exhibition on Underwater Acoustics pp 1639- 1644 (2014).
40. Panagiotis Papadakis, George Piperakis and Spyros Kouzoupis, ***Calibration Of Ultrasound Transducer Heads Using Short Preprocessed Ultrasonic Pulses,*** In proceedings of the 2nd International Conference and Exhibition on Underwater Acoustics pp. 939-946, (2014).
41. Π. Παπαδάκης, Γ. Πιπεράκης και Μ. Καλογεράκης, ***Παραμετρική ανάλυση του συντελεστή ανάκλασης από στρωματοποιημένο πυθμένα δύο στρωμάτων με επικλινή διεπιφάνεια.*** Πρακτικά Συνεδρίου Ακουστική 2014, 293-298 (2014). (IN GREEK)

42. Π. Παπαδάκης, Εμμ. Σκαρσουλής, Γ. Πιπεράκης, Μ. Καλογεράκης και Ε. Ορφανάκης, **Ακουστικές Μετρήσεις στον Κόλπο του Ηρακλείου** Πρακτικά Συνεδρίου Ακουστική 2014, 299-304 (2014). (IN GREEK)