

CV of ANDREAS POLYDOROS

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GENERAL INFORMATION

1 Personal Data

Name: Andreas Polydoros
Date of Birth: June 28, 1954
Marital Status: Married, two children
Business Address: Professor
Department of Physics
University of Athens
Building Physics V
Panepistimiopolis
Athens, 157 84, Greece
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2 Education

- Doctor of Philosophy in Electrical Engineering
University of Southern California, USA, August 1982
- Master's of Science in Electrical Engineering
State University of New York at Buffalo, USA, June 1979
- Diploma in Electrical and Mechanical Engineering
National Technical University of Athens, Greece, June 1977

3 Academic Appointments

- **National and Kapodistrian University of Athens, Greece**
Department of Physics
June 1997 – Present
Professor

June 1997 – June 2007
Director
Electronics Laboratory
- **University of Southern California**
Department of Electrical Engineering/Systems
September 1992 – May 1997
Professor

September 1987 – 1992
Associate Professor

March 1991 – June 1993
Communication Sciences Institute
Co-Director

September 1982 – September 1987

Assistant Professor

September 1980 – September 1982

Lecturer

September 1979 – September 1982

Research Assistant

- **State University of New York at Buffalo**
Department of Electrical Engineering
September 1977 – September 1979
Research Assistant

Fall 1978
Lecturer (Control Systems, Undergraduate)

4 Teaching Activity

Teaching activity at the University of Southern California:

	Summary Numbers
Graduate Courses:	8
Undergraduate Courses:	3
Short Courses:	9

Teaching activity at the University of Athens:

	Summary Numbers
Graduate Courses:	3
Undergraduate Courses:	2
Short Courses:	1

The five courses above at the University of Athens were created *ab initio*.
Detailed information is given in Appendix A.

5 Research Activity

5.1 Doctoral Students

Doctoral Theses at the University of Southern California:

Theses Supervision (Major Advisor)	Completed	Continuing
Doctoral Theses	18	-

Doctoral Theses the University of Athens:

Theses Supervision (Major Advisor)	Completed	Continuing
Doctoral Theses	1	3

Detailed information is given in Appendix B.

5.2 Textbooks/Chapters

Co-author in 3 book chapters; detailed information is given in Appendix C.

5.3 Refereed Full Papers Appearing in Scientific Journals

Published 38 Full Papers in Refereed Scientific Journals; detailed information is given in Appendix D.

5.4 Refereed Short Papers Appearing in Scientific Journals

Published 3 Short Papers in Refereed Scientific Journals; detailed information is given in Appendix E.

5.5 Papers Submitted to Refereed Scientific Journals

Submitted 1 Paper in Refereed Scientific Journals; detailed information is given in Appendix F.

5.6 Complete Papers Published in Refereed Conference Proceedings

Published 113 Complete Papers in Refereed Conference Proceedings; detailed information is given in Appendix G.

5.7 Citations

Cited 685 times (Dec. 2008), according to ISI Web of Knowledge. The h index is 20. Highlights of the citations are given in Appendix H.

6 Participation in Research and Development projects

Participated in several Research programs in the USA and the European Union; detailed information is given in Appendix I.

7 Honours/Awards

- Elected *Fellow* of the IEEE, cited for “contributions to spread-spectrum systems and networks”, 1995.
- USA National Science Foundation, Presidential Young Investigator Award, 1986.
- Appointed Member, Greek National Council of Research and Technology, 2001-3.
- Appointed Member, Scientific Committee, ARCES Research Center, University of Bologna, Italy, 2003-4.
- TRW Junior Faculty Award, 1986.
- Fullbright Exchange-Program Scholarship, 1977-1982.
- Greek National Fellowship Institute (IKY) Awards, 1972-1977.
- Best Paper Award, G. E. Corazza and A. Polydoros, " Code Acquisition in CDMA Cellular Mobile Networks, Part I: General Theory," *Proceedings of ISSSTA'98*, Sun City, South Africa, Sept. 1998.
- Listed in *ICI Highly Cited*.

8 Patents

A. Polydoros and R. Raheli, “*System and method for estimating data sequences in digital transmissions*,” US Patent 5,432,821, July 1995.

- Has been referenced by 53 subsequent patents (US Patent Office, Dec. 2008).
- Has been licensed by the *owner* (University of Southern California) to Viasat Corp. San Diego, California (1995), on an exclusive basis; technology inserted in many thousands of satellite Very Small Aperture Terminals (VSAT).
- Corresponding paper in *IEEE Trans. Commun.* cited 193 times (ISI Web of Knowledge, Dec. 2008).

9 Professional activities and consulting

- Has consulted extensively on an international basis.
- Co-Founder and Technology Advisory Board Chairman, TrellisWare Technologies, San Diego, California, 2000.

Detailed information is given in Appendix J.

10 Invited talks

Has given 34 invited and plenary talks.

Detailed information is given in Appendix K.

11 University Committee Work and Activities

Detailed information is given in Appendix L.

Appendix A

Teaching Activity

A.1 Graduate Courses Taught

University of Southern California (1982-1997)

EE 562a, *Random Processes in Engineering*, Part a
Spring 1983, Summer 1983, Fall 1983, Spring 1988, Fall 1990, Spring 1996

EE 562b, *Advanced Random Processes in Engineering*, Part b
Fall 1985, Fall 1986, Fall 1987, Fall 1989, Fall 1992, Spring 1995

EE 564, *Communication Theory*
Fall 1996, Spring 1997

EE 567, *Communication Systems*
Fall 1984, Spring 1992, Spring 1993, Spring 1994

EE 568a, *Error-Correcting Codes, Part a*
Spring 1987

EE 599, *Spread Spectrum Systems*
Spring 1991, Fall 1995, Fall 1996

EE 664, *Advanced Topics in Communication Theory*
Spring 1990

EE 666, *Data Communication Systems*
Spring 1996

On Sabbatical: Fall 1988, Spring 1989, 2007-08.

National Technical University of Athens, Greece (sabbatical leave, 1989)

Digital Communications
Spring 1989

National and Kapodistrian University of Athens, Greece (1997-2008)

Department of Physics, Division of Applied Physics

Random Processes

Master's in Electronics and Telecommunications, 1st semester (mandatory)
Continuously since 2002; course and on-line class notes created *ab initio*.

Digital Modems

Master's in Electronics and Telecommunications, 3rd semester (mandatory)
Continuously since 2002; course and on-line class notes created *ab initio*.

Advanced Class on Digital Modems

Master's in Electronics and Telecommunications, 4th semester (elective)
Continuously since 2003; course and on-line class notes created *ab initio*.

A.2 Undergraduate Courses Taught

University of Southern California (1982-1997)

EE 301, *Linear Systems*

Spring 1984

EE 464, *Probability Theory*

Spring 1982, Summer 1982, Fall 1982, Fall 1991, Fall 1993

EE 467, *Elements of Comm. Systems*

Spring 1985, Spring 1986

National and Kapodistrian University of Athens, Greece (1997-2008)

Department of Physics, Division of Applied Physics

Stochastic Signals and Applications

Physics Department, 7th semester (elective)

Since 1997; course and on-line class notes created *ab initio*.

Digital Signal Processing

Physics Department, 7th semester (elective)

Since 1997; course and on-line class notes created *ab initio*.

A.3 Short Courses

University of Southern California

"*Spread Spectrum Systems*"

(jointly with C. L. Weber), July 11–14, 1983

Military Communication Conference, San Diego, California

"*Spread Spectrum Code Synchronization*"

October 24, 1988

Military Communication Conference, Monterey, California

"*Spread Spectrum Synchronization*"

(jointly with K. Kosbar)

October 2, 1990

"*Theory and Practice of Automatic Signal Recognition*"

(jointly with B. Rice)

October 1, 1990

Mobile Cellular Telecommunications Conference, Seoul, Korea

"*Spread Spectrum System Design: Techniques and Trade-offs*"

September 12, 1991

Military Communication Conference, McLean, Virginia

"*Spread Spectrum Synchronization*"

(jointly with K. Kosbar)

November 7, 1991

Technical University of Crete
"Introduction to Spread-Spectrum Communication Systems"
August 1-3, 1992.

Military Communication Conference, San Diego, California
"Theory & Practice of Automatic Signal Recognition"
(jointly with B. Rice)
October 14, 1992.

UCLA Extension
"Intelligent Vehicle and Highway Systems"
(jointly with R. Gerges, K. Dessouki, K. Hedrick)
February 17, 1993.

Military Communication Conference, Fort Monmouth, N.J.
"Likelihood-Based Inference on Uncertain Digital Signals"
October 3, 1994.

Brazilian Computer Science Society Symposium, Fortaleza, Brazil
"Wireless Communication Systems",
May 20, 1996.

NEWCOM++ Winter School on *"Flexible Radio and related technologies"*
Aachen, Germany: UMIC Research Centre
February 3-6, 2009

Appendix B

Graduate Theses Supervision (Major Advisor)

Doctoral Theses

1. Robert Wald
Thesis Title: "Optimization of Full-Time and Time-Shared Noncoherent Code Tracking Loops"
University of Southern California, August 1985
Currently with Northrop Grumman Corp.
2. Peter Pawlowski
Thesis Title: "On the Acquisition of Frequency-Hopped Spread Spectrum Signals in Jamming"
University of Southern California, May 1986
Currently with Northrop Grumman Corp.
3. Kiseon Kim
Thesis Title: "Model-Based Detectors of a Sinusoid in Noise: Theory and Performance"
University of Southern California, December 1987
Currently with Kwang-Ju Institute of Science and Technology, Korea.
4. Nikos Pronios
Thesis Title: "On the Performance of Slotted Random-Access Networks under Jamming"
University of Southern California, August 1988
Currently with Intracom Defense, Greece.
5. Kurt Kosbar
Thesis Title: "Open and Closed Loop Delay Estimation with Applications to Pseudonoise Code Tracking"
University of Southern California, August 1988
Currently with University of Missouri, Rolla.
6. Chardir Chung
Thesis Title: "Multi-Hop Frequency-Hopping Detection"
University of Southern California, May 1989
Currently with National Central University, Taiwan.
7. Thomas Ketseoglou
Thesis Title: "Coding Adaptivity Issues in Spread-Spectrum Random-Access Networks"
University of Southern California, August 1990
Currently with California State University, Pomona,.
8. Chung-Yu Huang
Thesis Title: "Advanced Methods for Digital Modulation Classification"
University of Southern California, May 1991

Currently with LinkComm, Taiwan.

9. Jorge Pereira
Thesis Title: "PN-Code Acquisition in Slow Fading Channels with Application to IVHS"
University of Southern California, August 1993
Currently with European Commission Research Directorate.
10. Ching-Kae Tzou.
Thesis Title: "PSP: A General Approach to MLSE in Uncertain Environments"
University of Southern California, December 1993
Currently with ETRI, Taiwan.
11. Chung-Ming Sun
Thesis Title: "On the Performance Analysis of Microcellular Systems"
University of Southern California, June 1994.
Currently with Chungshan Institute of Science and Technology, Taiwan.
12. Keith Chugg
Thesis Title: "Sequence Estimation in the Presence of Parametric Uncertainty"
University of Southern California, August 1995.
Currently with University of Southern California.
13. Levent Aydin
Thesis Title: "Hop-Timing Estimation for Frequency-Hopping Signals"
University of Southern California, December 1995.
Currently with Qualcomm Corp.
14. Norman Lay
Thesis Title: "Modulation Classification and Data Detection of Signals in Unknown ISI Environments"
University of Southern California, December 1995.
Currently with Jet Propulsion Laboratory, Pasadena, CA.
15. Chu-Sieng Long
Thesis Title: "Further Results of Likelihood Techniques in Modulation Classification"
University of Southern California, December 1995.
Currently with Hughes Networks Systems.
16. Prokopios Panagiotou
Thesis Topic: Spatial Signal Inference in Interference Environments.
University of Southern California, December 1998.
Currently with Helix Corp., California.
17. Gent Papanicolaou
Thesis Topic: "Array Processing Algorithms for Multipath Fading and Co-Channel Interference in Wireless Systems"
University of Southern California, December 1998.
Currently with Qualcomm Corp..
18. Kriang Lerdsuwanakaj

Thesis Topic: "On Receivers for Multipath Fading and Random Phase Channels"
University of Southern California, December 2000.

19. Kostas Nikitopoulos

Thesis Topic: "Equalization and synchronization in OFDM systems"
University of Athens, February 2005.
Currently with Technical University of Aachen (RWTH), Germany.

Appendix C

Textbooks/Chapters

1. Polydoros and S. Glisic, "Code Synchronization: A Review of Principles and Techniques," in Code Division Multiple Access Communications, S. Glisic and P. Leppanen, Eds., Kluwer Academic Publishers, 1995.
2. Polydoros and P. Panagiotou, "Communication Technologies for AHS" in Automated Highway Systems, P. Ioannou, Ed., Plenum Press, 1997.
3. Polydoros and K. Chugg, "Per Survivor Processing" in Wireless Communications: TDMA versus CDMA, S.Glisic and P. Leppanen, Eds., Kluwer Academic Publishers, 1997.

Appendix D

Refereed Full Papers Published in Scientific Journals

1. A. Polydoros and E. N. Protonotarios, "Digital Interpolation of Stochastic Signals," IEEE Transactions on Circuits and Systems, Vol. CAS-26, No. 11, pp. 916–922, November 1979.
2. M. K. Simon and A. Polydoros, "Coherent Detection of Frequency-Hopped Quadrature Modulations in the Presence of Jamming, Part I: QPSK and QASK Modulations," IEEE Transactions on Communications, Vol. COM-29, No. 11, pp. 1644–1660, November 1981.
3. M. K. Simon, G. K. Huth and A. Polydoros, "Differentially Coherent Detection of QASK for Frequency Hopping Systems, Part I: Performance in the Presence of a Gaussian Noise Environment," IEEE Transactions on Communications, Vol. COM-30, No. 1, pp. 158-164, January 1982.
4. A. Polydoros, "Effect of Data Asymmetry on Unbalanced QPSK Signals with Noisy Phase Reference," IEEE Transactions on Communications, Vol. COM-30, No. 7, pp. 1735–1746, July 1982.
5. A. Polydoros and C. L. Weber, "A Unified Approach to Serial Search Spread Spectrum Code Acquisition, Part I: The General Theory," IEEE Transactions on Communications, Vol. COM-32, pp. 542–549, May 1984.
6. A. Polydoros and C. L. Weber, "A Unified Approach to Serial Search Spread Spectrum Code Acquisition, Part II: A Matched Filter Receiver," IEEE Transactions on Communications, Vol. COM-32, pp. 550–560, May 1984.
7. A. Polydoros and M. K. Simon, "Generalized Serial Search Code Acquisition: The Equivalent Circular State-Diagram Approach," IEEE Transactions on Communications, Vol. COM-32, pp. 1260–1268, December 1984.
8. A. Polydoros and C. L. Weber, "Analysis and Optimization of Correlative Code-Tracking Loops in Spread Spectrum Systems," IEEE Transactions on Communications, Vol. COM-33, pp. 30–43, January 1985.
9. A. Polydoros and C. L. Weber, "Wideband Detection Considerations for Direct-Sequence and Time-Hopping LPI Waveforms," IEEE Journal on Selected Areas in Communications, Special Issue on Military Communications, Vol. SAC-3, pp. 727–744, September 1985.
10. A. Polydoros and K. T. Woo, "LPI Detection for FH Signals Using Autocorrelation Techniques," IEEE Journal on Selected Areas in Communications, Special Issue on Military Communications, Vol. SAC-3, pp. 714–726, September 1985.
11. R. Sampaio-Neto, A. Polydoros, and R. A. Scholtz, "Performance of Standard Code-Tracking Loops in the Presence of Dual-Tone Interference," IEEE Transactions on Communications, Vol. COM-34, No. 10, pp. 999–1088, October 1986.
12. A. Polydoros and J. A. Silvester, "Slotted Random Access Spread Spectrum Networks – An Analytical Framework," IEEE Journal on Selected Areas in Communications, A Special Issue on Performance Evaluation of Multiple-Access Networks, Vol. SAC-5, No. 5, pp. 989–1002, July 1987.
13. S. Hinedi and A. Polydoros, "DS/LPI Autocorrelation Detection in Noise Plus Random Interference," IEEE Transactions on Communications, Vol. 38, No. 5, pp. 805–817, June 1990.
14. A. Polydoros and N. Pronios, "On the Power Spectral Density of Digitally Modulated Signals and Applications in Code Despreading," IEEE Journal on Selected Areas in

- Communications, Special Issue on Spread Spectrum Communications, Vol. 8, No. 5, pp. 837–852, June 1990.
15. A. Polydoros and K. Kim, "On the Detection and Classification of Quadrature Digital Modulations in Broadband Noise," *IEEE Transactions on Communications*, Vol. 38, No. 8, pp. 1199–1211, August 1990.
 16. U. Cheng, M. K. Simon, A. Polydoros and B. K. Levitt, "Statistical Models for Evaluating the Performance of Coherent Slow Frequency-Hopped MFSK Intercept Receivers," *IEEE Transactions on Communications*, Vol. 42, No. 2/3/4, pp. 689-699, Feb./March/April 1994.
 17. U. Cheng, B. K. Levitt, A. Polydoros and M. K. Simon, "Optimum Detection of Slow Frequency Hopping Signals," *IEEE Transactions on Communications*, Vol. 42, No. 2/3/4, pp. 1990-2000, Feb./March/April 1994.
 18. H. Meyr, M. Oerder and A. Polydoros, "On Sampling Rate, Analog Prefiltering and Sufficient Statistics for Digital Receivers," *IEEE Transactions on Communications*, Vol. 42, No. 12, pp. 3208-3214, December 1994.
 19. C-M. Sun and A. Polydoros, "Performance Evaluation of Multi-Cell Direct-Sequence Microcellular Systems," *European Transactions on Telecommunications*, Special Issue on Spread Spectrum Techniques, January 1995.
 20. C-D. Chung and A. Polydoros, "Parameter Estimation of Random FH Signals Using Autocorrelation Techniques," *IEEE Transactions on Communications*, Vol. 43, No. 2/3/4, pp. 1097-1106, February/March/April 1995.
 21. R. Raheli, A. Polydoros and C-K. Tzou, "Per-Survivor Processing: A General Approach to MLSE in Uncertain Environments," *IEEE Transactions on Communications*, Vol. 43, No. 2/3/4, pp. 354-364, February/March/April 1995.
 22. C-Y Huang and A. Polydoros, "Likelihood Methods for MPSK Modulation Classification," *IEEE Transactions on Communications*, Vol. 43, No. 2/3/4, pp. 1493-1504, February/March/April 1995.
 23. U. Cheng, M. K. Simon, A. Polydoros and B. K. Levitt, "Statistical Models for Evaluating the Performance of Noncoherent SFH/MFSK Intercept Receivers," *IEEE Transactions on Communications*, Vol. 43, No. 2/3/4, pp. 1703-1712, Feb/March/April 1995.
 24. M. K. Simon, U. Cheng, L. Aydin, A. Polydoros and B. K. Levitt, "Hop Timing Estimation for Noncoherent FH/MFSK Intercept Receivers," *IEEE Transactions on Communications*, Vol. 43, No. 2/3/4, pp. 1144-1154, February/March/April 1995.
 25. L. Aydin and A. Polydoros, "Hop-Timing Estimation for FH Signals Using a Coarsely Channelized Receiver," *IEEE Transactions on Communications*, Vol. 44, No. 4, pp. 516-526, April 1996.
 26. K. Chugg and A. Polydoros, "MLSE for an Unknown Channel-Part I: Optimality Considerations," *IEEE Transactions on Communications*, Vol. 44, No. 7, pp. 836-846, July 1996.
 27. K. Chugg and A. Polydoros, "MLSE for an Unknown Channel-Part II: Tracking Performance," *IEEE Transactions on Communications*, Vol. 44, No. 8, August 1996.
 28. T-K Liu, J. A. Silvester and A. Polydoros, "Retransmission Control and Fairness Issue in Mobile Slotted ALOHA Networks with Fading and Near-Far Effect," *ACM/Baltzer Journal of Wireless Networks*, Special Issue on "Channel Access in Wireless Networks", pp. 101-110, 1997.
 29. A. Anastasopoulos and A. Polydoros, "Adaptive Soft-Decision Algorithms for Mobile Fading Channels," *European Transactions on Telecommunications Special Issue on Signal Processing in Telecommunications*, pp. 183-190, March/April 1998.
 30. A. Vanelli-Coralli, P. Salmi, S. Cioni, G. E. Corazza and A. Polydoros, "A Performance Review of PSP for Joint Phase/Frequency and Data Estimation in

- Future Broadband Satellite Networks,” IEEE Journal on Selected Areas in Communications, pp. 2298-2309, December 2001.
31. A.Polydoros, J.Rautio, G.Razzano, H.Bogucka, D.Ragazzi, P.I.Dallas, A.Mammela, M.Benedix, M.Lobeira, L.Agarossi, “WIND-FLEX: Developing A Novel Test-Bed For Exploring Flexible Radio Concepts In An Indoor Environment”, IEEE Communications Magazine, July 2003.
 32. K.Narenthiran, M.Karaliopoulos, B.G.Evans, W.De-Win, M.Dieudonne, P.Henrio, M.Mazzella, E.Angelou, I.Andrikopoulos, P.I.Philippopoulos, D.I.Axiotis, N.Dimitriou, A.Polydoros, G.E.Corazza, A.Vanelli-Coralli, “S-UMTS access network for broadcast and multicast service delivery: the SATIN approach”, International Journal of Satellite Communications and Networking, vol.22 (1): 87-111, Jan-Feb 2004.
 33. G.E.Corazza, C.Caini, A.Vanelli-Coralli, A.Polydoros, “DS-CDMA Code Acquisition in the Presence of Correlated Fading - Part I: Theoretical Aspects”, IEEE Transactions on Communications, July 2004.
 34. M.Karaliopoulos, K.Narenthiran, B.Evans, P.Henrio, M.Mazzella, W.De-Win, M.Dieudonne, P.Philippopoulos, D.Axiotis, I.Andrikopoulos, I.Mertzanis, G.E.Corazza, A.Vanelli-Coralli, N.Dimitriou and A.Polydoros, “Satellite Radio Interface and Radio Resource Management Strategy for the Delivery of Multicast/Broadcast Services via an Integrated Satellite-Terrestrial System”, IEEE Communications Magazine, Sept. 2004.
 35. A.Levissianos, G.Metaxas, N.Dimitriou and A.Polydoros, “Layered Coding for Satellite-plus-Terrestrial Multipath Correlated Fading Channels”, International Journal of Satellite Communications and Networking, vol.22: 489-502, Sep-Oct. 2004.
 36. K.Nikitopoulos and A.Polydoros, “Phase-impairment effects and compensation algorithms for OFDM systems”, IEEE Transactions on Communications, vol. 53, No 4, April 2005.
 37. I.Dagres, A.Zalonis, N.Dimitriou, K.Nikitopoulos and A.Polydoros, “Flexible Radio: a Framework for Optimized Multimodal Operation via Dynamic Signal Design”, EURASIP Journal on Wireless Communications and Networking 2005:3, 284-297, Special issue on Reconfigurable Radio for future generation wireless systems, 2005.
 38. K.Nikitopoulos and A.Polydoros, "Inter-frame, fine frequency/phase synchronization for simple space-time-coded OFDM receivers", IEEE Transactions on Wireless Communications, vol. 6, no. 10, pp. 3510-3514, Oct. 2007.

Appendix E

Refereed Short Papers Published in Scientific Journals

1. A. Polydoros and C. L. Nikias, "Detection of Unknown-Frequency Sinusoids in Noise: Spectral versus Correlation Domain and Autoregressive Modeling," IEEE Transactions on Acoustics, Speech and Signal Processing, Vol. ASSP-35, No. 6, pp. 890–897, June 1987.
2. K. Kosbar and A. Polydoros, "A Lower-Bounding Technique for the Delay Estimation of Discontinuous Signals," IEEE Transactions on Information Theory, Vol. 38, No. 2, pp. 451-457, March 1992.
3. K. Nikitopoulos and A. Polydoros, "Decision-directed compensation of phase noise and residual frequency offset in a Space-Time OFDM receiver", IEEE Communications Letters, vol. 8, No.9, pp. 573-575, Sept. 2004.

Appendix F

Papers Submitted to Refereed Scientific Journals

1. I. Dages and A. Polydoros, "Decision-Directed Least Squares Phase Error Compensation in OFDM systems," submitted to IEEE Transactions on Wireless Communications, October 2008.

Appendix G

Papers Published in Refereed Conference Proceedings

1. A. Polydoros and E. N. Protonotarios, "Digital Interpolation of Stochastic Signals," *Proceedings of the International Conference on Digital Signal Processing*, Florence, Italy, August 1978.
2. A. Polydoros and D. Kazakos, "Maximum-Likelihood Sequence Estimation in the Presence of Infinite Intersymbol Interference," *Proceedings of the International Conference on Communications (ICC)*, Boston, Massachusetts, June 1979, pp. 25.2.1–25.2.5.
3. A. Polydoros and A. Fam, "The Differential Cepstrum: Definition and Properties," *Proceedings of the IEEE International Symposium on Circuits and Systems*, Chicago, Illinois, April 1981, pp. 77–80.
4. A. Polydoros and C. L. Weber, "Worst-Case Considerations for Coherent Serial Acquisition of PN Sequences," *Proceedings of the National Telecommunications Conference (NTC)*, Houston, Texas, December 1980, pp. 24.6.1–24.6.5.
5. A. Polydoros and C. L. Weber, "Rapid Acquisition Techniques," *Proceedings of the National Telecommunications Conference (NTC)*, New Orleans, Louisiana, December 1981, pp. A7.1.1–A7.1.5.
6. M. K. Simon, A. Polydoros and G. K. Huth, "Time Synchronization of a Frequency-Hopped MFSK Communication System," *Proceedings of the International Conference on Communications (ICC)*, Denver, Colorado, June 1981, pp. 76.1.1–76.1.5.
7. G. K. Huth, A. Polydoros and M. K. Simon, "Frequency Synchronization of a Frequency-Hopped MFSK Communication System," *Proceedings of the International Conference on Communications (ICC)*, Denver, Colorado, June 1981, pp. 34.1.1–34.1.5.
8. M. K. Simon and A. Polydoros, "Coherent Detection of Frequency-Hopped Quadrature Modulations in the Presence of Jamming, Part I: QPSK and QASK Modulations," *Proceedings of the International Telemetry Conference*, San Diego, California, October 1981.
9. A. Polydoros and C. L. Weber, "Analysis and Optimization of Correlative Code Tracking Loops in Spread Spectrum Systems," *Proceedings of MILCOM '82*, Boston, Massachusetts, October 1982, pp. 27.2.1–27.2.5.
10. A. Polydoros and C. L. Weber, "Optimal Detection Considerations for Low Probability of Intercept," *Proceedings of MILCOM '82*, Boston, Massachusetts, October 1982, pp. 2.1.1–2.1.5.
11. A. Polydoros, P. W. Nilsen and C. L. Weber, "Detached Payload/Orbiter Two-Way Phase Noise Considerations," *Proceedings of the National Telemetry Conference (NTC)*, Galveston, Texas, November 1982, pp. F2.5.1–F2.5.5.
12. A. Polydoros, "Generalized Serial Search Code Acquisition: The Equivalent Circular State-Diagram Approach," *Proceedings of MILCOM '83*, pp. 496–500, Washington, DC, October 1983.
13. P. Pawlowski and A. Polydoros, "Worst-Case Jamming for Frequency-Hopping Code Acquisition," *Proceedings of MILCOM '83*, pp. 512–516, Washington, DC, October 1983.
14. A. Polydoros and J. K. Holmes, "Autocorrelation Techniques for Wideband Detection of FH/DS Waveforms in Random Tone Interference," *Proceedings of MILCOM '83*, pp. 776–780, Washington, DC, October 1983.

15. A. Polydoros and J. K. Holmes, "Autocorrelation Techniques for Wideband Detection of FH Waveforms in White Noise," Proceedings of MILCOM '83, pp. 781–785, Washington, DC, October 1983.
16. A. Polydoros and K. T. Woo, "Wideband Spectral Detection of Unknown Frequency Hopping Signals," International Symposium on Information Theory, Brighton, England, June 1985 (abstract only).
17. A. Polydoros and J. A. Silvester, "An Analytic Framework for Slotted Random Access Spread Spectrum Networks," Proceedings of MILCOM '85, Boston, Massachusetts, October 1985.
18. P. Pawlowski and A. Polydoros, "Optimization of a Matched Filter Receiver for FH Code Acquisition in Jamming," Proceedings of MILCOM '85, Boston, Massachusetts, October 1985.
19. R. Ward and A. Polydoros, "Optimization of Full-Time and Time-Shared Noncoherent Code-Tracking Loops," Proceedings of MILCOM '85, Boston, Massachusetts, October 1985.
20. A. Polydoros and C. L. Nikias, "Advanced Detection of Unknown-Frequency Sinusoids in Broadband Noise," Proceedings of the International Conference on Communications (ICC), Toronto, Canada, June 1986.
21. P. Pawlowski and A. Polydoros, "Adaptive Nonparametric Acquisition of FH-SS Codes in Jamming," Proceedings of MILCOM '86, Monterey, California, 1986.
22. A. Polydoros, "Wideband Detection of Unknown Frequency Signals," ASSP Spectral Estimation Workshop, Boston, Massachusetts, November 1986.
23. N. B. Pronios and A. Polydoros, "Slotted ALOHA-type Fully Connected Networks in Jamming, Part I: Unspread ALOHA," Proceedings of MILCOM'87, Washington DC, October 1987.
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26. A. Polydoros and C. L. Weber, "On the Detection and Classification of Quadrature Digital Modulations in Broadband Noise," Proceedings of the IEEE International Theory Symposium, Kobe, Japan, June 19–23, 1988 (abstract only).
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36. T. Papavassiliou, A. Polydoros and J. A. Silvester, "Effect of Spatial Node Distribution on Performance of Frequency-Hop Spread Spectrum Packet Radio Networks," International Symposium on Spread Spectrum Techniques and Applications, London, England, September 24–26, 1990.
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44. C.Y. Hwang and A. Polydoros, "Advanced Methods For Digital Quadrature And Offset Modulation Classification," Proceedings of MILCOM '91, pp. 35.4.1-5, Washington D.C., November 4 - 7, 1991.
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79. A. Polydoros, "Notes on Digital Likelihood Processing," *6th International Workshop on Digital Signal Processing Techniques for Space Applications*, ESA/ESTEC, Section 1.2, Holland, Sept. 1998.
80. G. Corazza, A. Polydoros and T. Vaidis, "Advanced Digital Receivers for Direct to User Satellite Communications Adopting the PSP Principle to Counteract Phase Noise and Doppler," *6th International Workshop on Digital Signal Processing Techniques for Space Applications*, ESA/ESTEC, Section 1.4, Holland, Sept. 1998.
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82. G. E. Corazza, A. Polydoros, A. Vanelli-Coralli, P. Salmi and S. Cioni, "Performance Analysis of PSP-based Joint Data Decoding and Phase/Frequency Estimation in Satellite Networks," *Proceedings of PIMRC'00*, London, UK, Sept. 2000.
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85. T. Vaidis and A. Polydoros, "Frequency Offset Effects and Related Algorithms in Digital Receivers," Proceedings of Globecom'01, San Antonio, TX, Nov. 2001.

86. C. Nikipoulos and A. Polydoros, "Compensation Schemes for Phase Noise and Residual Frequency Offset in OFDM Systems," Proceedings of Globecom'01, San Antonio, TX, Nov. 2001.
87. A. Mammela, A. Polydoros and P. Jarvensivu, "Data and Channel Estimators: a Systematic Classification," Proceedings of URSI'02 Symposium, Poznan, Poland, March 2002.
88. A. Polydoros and K. Chugg, "Co-Channel Mitigation Techniques for Narrowband Signals," Proceedings of URSI'02 Symposium, Poznan, Poland, March 2002.
89. C. Fragouli and A. Polydoros, "Symbol Interleaved, Serially Concatenated Trellis Codes," Proceedings of Conference on Information Sciences and Systems (CISS'02), Princeton, NJ, March 2002.
90. C. Nikipoulos and A. Polydoros, "Post-FFT Fine Frame Synchronization for OFDM Systems," Proceedings of IST Mobile Summit'02, Thessaloniki, Greece, June 2002.
91. I. Saarinen, G. Coppola, A. Polydoros, J. L. Garcia, M. Lobeira, P. Dallas, M. Gertou, R. Cusani and G. Razzano, "High Bit Rate Adaptive WIND-FLEX Modem Architecture for Wireless Ad-Hoc Networking in Indoor Environments," Proceedings of IST Mobile Summit'02, Thessaloniki, Greece, June 2002.
92. C. Fragouli and A. Polydoros, "Serially Concatenated Coding for Broadcasting S-UMTS Applications," Proceedings of IEEE International Symposium on Spread Spectrum Techniques and Applications (ISSTA'02), Prague, Czech Republic, Sept. 2002.
93. C. Nikipoulos and A. Polydoros, "Joint Channel Equalization and Residual Frequency Offset and Phase Noise Compensation in OFDM Systems," Proceedings of 7th International OFDM Workshop, Hamburg, Sept. 2002.
94. A. Polydoros, "Towards Ubiquitous Wireless Communications: A Signal Processing Perspective," Proceedings of URSI'02 Symposium, Poznan, Poland, March 2002.
95. L. Zaccaro, T. Severijns, W. De Win, M. Dieudonne, K. Narenthiran, M. Karaliopoulos, B. G. Evans, M. Mazzella, G. E. Corazza, A. Polydoros, I. Mertzanis and P. Philippopoulos, "SATIN Multicast/Broadcast oriented architecture and S/T-UMTS terminal and network level integration," European Mobile/Personal Satcoms Conference (EMPS), Baveno / Stresa - Lake Maggiore, Italy, Sept. 2002.
96. H. Bogucka, A. Polydoros, G. Razzano, "WINDFLEX - A Reconfigurable Radio System on the Path to SDR," Software Defined Radio Forum Technical Conference, San Diego, CA, USA, Nov. 2002.
97. K. Nikipoulos and A. Polydoros, "Phase noise and residual frequency offset compensation in space-time OFDM systems," IST Mobile and Wireless Telecommunications Summit 2003, Aveiro, Portugal, June 2003.
98. A. Levissianos, G. Metaxas, N. Dimitriou and A. Polydoros, "Layered Coding for Satellite and Terrestrial Multipath Correlated Fading Channels," 1st ASMS-TF conference, Frascati, Italy, July 2003.
99. I. Dages and A. Polydoros, "Dynamic Transceivers: Adaptivity and Reconfigurability at the Signal-Design Level," Software Defined Radio Forum Technical Conference, Orlando, USA, Nov. 2003.
100. A. Polydoros and I. Dages, "Dynamic Signal Design as a manifestation of Flexible Radio," Proceedings of URSI'05 Symposium, Poznan, Poland, April 2005.
101. K. Nikipoulos, G. Tsaramiadis and A. Polydoros, "Improved phase impairment compensation for frequency selective OFDM systems," IST Mobile and Wireless Telecommunications Summit 2005, Dresden, Germany, June 2005.
102. K. Nikipoulos and A. Polydoros, "Inter-frame, fine frequency/phase synchronization in space time - OFDM receivers," IST Mobile and Wireless Telecommunications Summit 2005, Dresden, Germany, June 2005.

103. I.Dagres, A. Zalonis and A.Polydoros, "An Efficient Adaptive Space Time Coding Scheme for MIMO-OFDM Systems," IST Mobile and Wireless Telecommunications Summit 2005, Dresden, Germany, June 2005.
104. I.Dagres and A.Polydoros, "Mode adaptation combined with power allocation for guaranteed QoS constraints in COFDM transceivers," International Wireless Summit - WPMC, Aalborg, Denmark, Sept. 2005.
105. I.Dagres, A.Zalonis and A.Polydoros, "Flexible-Radio: A General Framework with PHY-layer algorithm-design insights," EUROCON 2005, Belgrade, Serbia & Montenegro, Nov. 2005.
106. A.Polydoros, I.Dagres, N.Dimitriou and A.Zalonis, "Dynamic Signal Design Optimization as a Flexible Radio paradigm," Wireless World Research Forum - WWRF15 Meeting, Paris, France, Dec. 2005.
107. A.Polydoros, I.Dagres and A.Zalonis, "Flexible Radio: A PHY-Layer Constrained-Optimization Perspective," Signal Processing for Space Communications (SPSC 2006), ESTEC, Noordwijk, The Netherlands, Sep. 2006.
108. G.E. Corazza, P. Britten, I. Buret, N. Chuberre, A. Davies, N.Dimitriou, M. Neri, A. Polydoros, H. Schotten, A. Vanelli-Coralli, A. Bolea Alamanac, "Defining the Role of Satellite Communications in 4G," World Wireless Congress 2007, San Francisco, USA, May 2007.
109. S. Stefanatos and A. Polydoros, "Gabor-Based Waveform Generation for Parametrically Flexible, Multi-Standard Transmitters," EUSIPCO 2007, Poznan, Poland, Sep. 2007.
110. S. Stefanatos, A. L. Moustakas and A. Polydoros, "Multicarrier Transmission via Gabor Frames: Signal Design and Channel Compensation," IEEE International Symposium on Spread Spectrum Techniques and Applications (ISSSTA) 2008, Bologna, Italy, Aug. 2008.
111. I. Dagres, A. Polydoros and K. Nikitopoulos, "Robust Phase Noise Compensation in OFDM via a Dual-Model Approach," IEEE International Symposium on Spread Spectrum Techniques and Applications (ISSSTA) 2008, Bologna, Italy, Aug. 2008.
112. A. Polydoros, "Algorithmic aspects of radio flexibility," *invited paper*, IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC) 2008, Cannes, France, Sep. 2008.

Appendix H

Citations

We list below the six top-cited papers:

1. R. Raheli, A. Polydoros and C-K. Tzou, "Per-Survivor Processing: A General Approach to MLSE in Uncertain Environments," IEEE Transactions on Communications, Vol. 43, No. 2/3/4, pp. 354-364, February/March/April 1995.

Citations: 193

2. A. Polydoros and C. L. Weber, "A Unified Approach to Serial Search Spread Spectrum Code Acquisition, Part I: The General Theory," IEEE Transactions on Communications, Vol. COM-32, pp. 542-549, May 1984.

Citations: 144

3. A. Polydoros and C. L. Weber, "A Unified Approach to Serial Search Spread Spectrum Code Acquisition, Part II: A Matched Filter Receiver," IEEE Transactions on Communications, Vol. COM-32, pp. 550-560, May 1984.

Citations: 100

4. K. Chugg and A. Polydoros, "MLSE for an Unknown Channel-Part I: Optimality Considerations," IEEE Transactions on Communications, Vol. 44, No. 7, pp. 836- 846, July 1996.

Citations: 42

5. A. Polydoros and J. A. Silvester, "Slotted Random Access Spread Spectrum Networks – An Analytical Framework," IEEE Journal on Selected Areas in Communications, A Special Issue on Performance Evaluation of Multiple-Access Networks, Vol. SAC-5, No. 5, pp. 989-1002, July 1987.

Citations: 37

6. A. Polydoros and K. Kim, "On the Detection and Classification of Quadrature Digital Modulations in Broadband Noise," IEEE Transactions on Communications, Vol. 38, No. 8, pp. 1199-1211, August 1990.

Citations: 35

Appendix I

Research Projects

I.1. Operating Grants and Contracts - USA

Summary Number: \$2,765,700 research funds for the period 1982 – 1997. The amounts indicated refer to the contract share of this investigator only.

California Transportation Agency/PATH \$48,500

Co-Principal Investigator (with J. Silvester)

"Comprehensive IVHS Communication Study: Phase 0-Identification of Key System Parameters"

September 1994 - August 1995

Hitachi Corp \$50,000

Co-Principal Investigator (with M. Pedram and T. Levi)

"Wireless Multimedia Communication Architectures"

November 1993 - October 1994

Center for Research in Adaptive Signal Processing \$70,000

Principal Investigator

"Likelihood Techniques for Digital Modulation Classification in AWGN"

September 1993 - August 1994

Joint Services Electronics Program \$215,000

Principal Investigator

"Inference and Sorting of Wideband Signals"

April 1994 – March 1997

California Transportation Agency/PATH 240,000

Principal Investigator

"An Integrated Physical/Link-Access Layer Model of Packet Radio Architectures with Applications to PATH Communications System Design"

March 1993 - February 1995

California Transportation Agency/PATH \$150,000

Principal Investigator

"Vehicle to Roadway Communications"

March 1992 - March 1993

Joint Services Electronics Program \$215,000

Principal Investigator

"Inference on Wideband Random Communication Signals"

April 1991 – March 1994

NASA-Lewis Research Center \$60,000

Co-Principal Investigator (with R. Leahy)

"Combined Bandwidth-Efficient Modulation and Equalization"

May 1991 – November 1992

AT&T \$130,000

Principal Investigator

"Certain Analytical and Design Issues for High-Efficiency Communication Links"

July 1988 – August 1990

Army Research Office \$198,000

Co-Principal Investigator (with J. Silvester)

"Adaptive Spread Spectrum Networks"

February 1988 – January 1991

Army Research Office \$161,000

Co-Principal Investigator (with R. A. Scholtz)

"Advanced Wideband Detection of LPI Waveforms"

May 1988 – April 1991

Army Research Office \$198,000

Co-Principal Investigator (with C. L. Weber)

"Modulation Characterization Techniques"

July 15, 1988 – June 14, 1991

National Science Foundation (PYI Award) \$500,000

Principal Investigator

"Topics in Wideband Communication"

September 1986 – September 1991

Army Research Office \$130,000

Senior Investigator (Co-PI's: R.A. Scholtz and C. L. Weber)

"Advanced Communication Techniques"

June 1985 – May 1988

Army Research Office \$205,200

Principal Investigator (with J. Silvester)

"Adaptive Spread Spectrum Networks"

June 1984 – June 1987

National Science Foundation \$92,000

Principal Investigator

"Analysis and Optimization of Spread Spectrum Synchronization Systems"

March 1984 – August 1986

Office of Naval Research (ONR) \$103,000

Co-Principal Investigator (with C. L. Weber and R. A. Scholtz)

"Principles of Spread Spectrum Systems"

September 1982 – September 1985

I.2. Operating Grants and Contracts – European Commission

European Space Agency (ESA)

Co-Principal Investigator (with G. Corazza)

"Applications of Per-Survivor Processing to Advance Digital Satellite Communications"

January 1998 – February 2000

Commission of the European Communities (CEC)-ESPRIT

Co-Principal Investigator (with the BC3 Consortium)

"Broadband Copper Communication Components-BC3"

September 1998 – August 2001

Commission of the European Communities (CEC)-ACTS

Co-Principal Investigator (with the ACCORD Consortium)

"ACTS Broadband Communication Joint Trials and Demonstrations-ACCORD"

November 1998 – December 1999

Commission of the European Communities (CEC)-IST

Co-Principal Investigator (with the WINDFLEX Consortium)

"Wireless Indoor Flexible High Bitrate Modem Architecture-WindFlex"

January 2000 – June 2003

Commission of the European Communities (CEC)-IST

Co-Principal Investigator (with the ADAMAS Consortium)

"Adaptive Multi-Carrier Access System"

March 2000 – February 2003

Commission of the European Communities (CEC)-IST

Co-Principal Investigator (with the SATIN Consortium)

"Satellite-UMTS IP-based Network-SATIN"

January 2001 – December 2002

Commission of the European Communities (CEC)-IST

Co-Principal Investigator (with the STINGRAY Consortium)

"Space-Time Coding for Reconfigurable Wireless Access Systems-Stingray"

January 2002 - December 2003

Commission of the European Communities (CEC)-IST

Co-Principal Investigator (with the NEWCOM NoE Consortium)

"Network of Excellence in Wireless COMMunications"

March 2004 - February 2007

Commission of the European Communities (CEC)-IST

Co-Principal Investigator (with the URANUS Consortium)

"Universal RAdio-link platform for efficieNt User-centric accesS"

January 2006 - December 2008

European Space Agency (ESA)

Co-Principal Investigator

"Study of Satellite Role in 4G Mobile Networks"

January 2006 – December 2008

Commission of the European Communities (CEC)-ICT

Co-Principal Investigator (with the NEWCOM++ NoE Consortium)

"Network of Excellence in Wireless COMMunications++"

January 2008 - December 2010

Commission of the European Communities (CEC)-ICT

Co-Principal Investigator (with the WIMAGIC Consortium)

“Worldwide Interoperability Microwave System for Next-Generation Wireless Communications”

January 2008 - December 2010

Operating Grants and Contracts-GSRT

Greece/Italy Scientific Cooperation

Co-Principal Investigator (with Prof. G. Corazza)

"Advanced Techniques of Digital Likelihood for the Design of Receivers in Future Wireless Telecommunication Multimedia Systems"

August 1999 – July 2001

Appendix J

Professional activities and consulting

1. IEEE Journal and Conference Activities

- **Associate Editor:** *IEEE Transactions on Information Theory (IT)*, September 1987–December 1988.
- **Workshop Co-Organizer and Technical Chairman:** *IEEE Communication Theory Workshop*, Palm Springs, California, 1986; Tuscon, Arizona, 1997.
- **Symposium Co-Organizer and Technical Co-Chairman:** *International Symposium on 3rd Generation Infrastructure and Services*, Athens, Greece, July 2-3, 2001.
- **Chairman:** *Los Angeles Information Theory Group*, 1982–1983.
- **Session Chairman:** *Synchronization Systems, Military Communications Conference (MILCOM)*, Boston, Massachusetts, October 18–21, 1982.
- **Session Chairman:** *Performance of Spread Spectrum Systems, Military Communications Conference (MILCOM)*, San Diego, California, October 21–24, 1984.
- **Session Chairman:** *Recent Advances in Communication Theory*, Communication Theory Workshop, Sedona, Arizona, April 2–5, 1988.
- **Session Chairman:** *Communication System Techniques/Performance, Military Communications Conference (MILCOM)*, San Diego, California, October 23–26, 1988.
- **Session Chairman:** *Special Topics in Communication Theory, Military Communications Conference (MILCOM)*, Monterey, California, September 30 – October 3, 1990.
- **Session Organizer and Chairman:** *LPI Communication Systems, Military Communications Conference (MILCOM)*, Washington, DC, November 4–7, 1991.
- **Session Organizer and Chairman:** *New Signal Processing in Digital Radios*, 22nd Annual Communication Theory Workshop, June 28-July 1992.
- **Session Organizer and Chairman:** *LPI Communication Systems, Military Communications Conference (MILCOM)*, San Diego, CA, October 11-14, 1992.
- **Session Organizer and Chairman:** *LPI Communication Systems, Military Communications Conference (MILCOM)*, Bedford, MA, October 11-14, 1993.
- **Session Organizer and Chairman:** *Synchronization Systems, Military Communications Conference (MILCOM)*, San Diego, CA, November 5-8, 1995.
- **International Advisory Committee Member:**
IEEE International Symposium on Spread Spectrum Techniques and Applications: 3rd in Oulu, Finland, July 4-6, 1994; 4th in Mainz, Germany, Sept. 22-25, 1996.
2nd European Workshop on Mobile/Personal SatComs, Italy, Oct. 9-11, 1996.
- **Co-Chairman:** International Symposium on 3rd Generation Infrastructure and Services, 2-3 July 2001, Athens, Greece.
- **Technical Program Co-Chairman:** 2008 IEEE 10th International Symposium on Spread Spectrum Techniques and Applications (ISSSTA), Bologna, Italy, Aug. 2008.

2. International Journal Activities

- **Guest co-Editor:** Special Issue on "Signal Processing in Telecommunications," European Transactions on Telecommunications and Related Technologies (ETT), January 1998.

- **Guest Editor:** Special Issue on Digital Signal Processing in Communications, *Digital Signal Processing: A Review Journal*, July 1993.
- **Area Editor,** *Wireless Personal Communications: An International Journal*, Kluwer academic publishers.

3. Memberships

- Member of the Institute of Electrical and Electronic Engineers (IEEE), Membership No. 7138613, Fellow 1995 - , Member 1982 – 1995, Stud. Member 1977 – 1982.
- Member of the IEEE Communication Theory Committee, 1983 – Present.
- Member of the IEEE Communications and Information Theory Societies.
- Eta Kappa Nu Honorary Society, 1982 – 1984.
- Member of Technical Chamber of Greece.

4. Reviewer for

- IEEE Transactions on Communications.
- IEEE Transactions on ASSP.
- IEEE Transactions on Information Theory.
- Journal of Information Sciences.
- Publication preview on Principles of Digital Communications with Applications, by B. Sklar for Prentice Hall.
- Research Proposals for the National Science Foundation (NSF).
- Proposal for the Army Research Office (ARO).
- Proposal for the Research Council of Canada.
- Proposals (2) for the Israeli Research Council.

5. Government Panels

- USA NSF Panelist: Review and Assessment Proposals in Communication and Networking, Washington, DC; November 1991; June 1994.
- Member, Hellenic GSRT National Research Council on Research and Technology, Greece, 2001-2003.
- Member, TETRA Radio Evaluation Committee, Ministry of Defence, Greece, 2003.

6. Consulting Affiliations

- Battelle Columbus Laboratories, Research Triangle, North Carolina
"Adaptive Spread Spectrum Networks"
1983.
- Gold Associates, Los Angeles, California
"Rapid Acquisition Sequences," "Electronic Countermeasures for FH Signals,"
Analysis of a PN-Delay Despreader"
1983 – 1984
- Omninet Corp., Los Angeles, California
"Design of a Mobile-Satellite Spread-Spectrum Messaging and Position-Location System"
1985
- General Dynamics, Pomona, California

"Angle Tracking of Complex Radar Targets via Nonlinear Compensators"
1986

- Security Ventures Corp., Los Angeles, California
"Higher-Moment Domain Signal Detection"
1987 – 1988
- EB Netcom, Norway
"Multihop, Mobile, Spread Spectrum Packet Radio Study"
1989
- Cierra Cybernetics, Brea, California
"Advanced Digital Voice Communication System for General Aviation Use"
1990
- Axiomatix Corp., Los Angeles, California
"Dynamic Jamming of Networks"
1987 – 1990
- Jet Propulsion Laboratory, Pasadena, California
"Wideband Emitter Sorting"
1991 - 1995
- Stochastix, Pacific Palisades, California
1992 – 1997

7. Part-Time Employment

- Axiomatix Corp., Los Angeles, California
1979 – 1986

8. Selected Industrial Reports (Contributor)

1. "Shuttle Ku-Band and S-Band Communications Implementation Study",
Axiomatix Corp., Report No. R8005-3, May 1980.
2. "Payload/Orbiter Signal-Processing and Data-Handling System Evaluation",
Axiomatix Corp., Report No. R8012-5, December 1980.
3. Design and Performance of a Fast Acquisition Hybrid FH/DS Noncoherent Spread
Spectrum System with Broadband Noise and Tone Jamming,"
Axiomatix Corp., Report No. R8104-3, April 1981.
4. "Adaptive Spread Spectrum Networks,"
Battelle Corp., November 1983.
5. "Advanced LPI Intercept Detector Research,"
Axiomatix Corp., Report No. R8403-1, March 1984.
6. "Analysis of the Ku-Band Shuttle/MRD I-Q Reversal Phenomena",
Axiomatix Corp., Report No. R8406-1, June 1984.
7. "Space Shuttle Program Communication and Tracking Systems Interface Analysis",
Axiomatix Corp., Report No. R8409-2, September 1984.
8. "Blossom-Point Upgrade Study,"
Axiomatix Corp., Report No. R8408-2, September 1984.
9. "Angle Tracking of Complex Radar Targets via Nonlinear Compensators",
General Dynamics, 1986.

10. "Topology-Selective Jamming of Certain CDMA Monohop Networks", Axiomatix Corp., Report No. R8712-5, December 1987.
11. "Dedicated vs. Half-Duplex Receiver Topology in Jammed, Fully-Connected CDMA Networks: Theory and Numerical Comparisons", Axiomatix Corp., Report No. 8812-1, December 1988.
12. "Packet Radio Networks Under Dynamic Jamming", Axiomatix Corp., Report No. R8912-1, December 1989.
13. "Classification and Comparison of Current Signal Processors for Wideband Emissions", Jet Propulsion Laboratory, Report No. D-9185, 1991.

9. Selected Academic/Research Reports

1. "Vehicle to Roadside Communications Study," California PATH Research Report, No. UCB-ITS-PRR-93-4, University of Southern California, June 1993.
2. "An Integrated Physical/Link-Access Layer Model of Packet Radio Architectures," California PATH Research Report, No. UCB-ITS-PRR-94-420 University of Southern California, October 1994.
3. "An Integrated Physical/Link-Access Layer Model of Packet Radio Architectures," California PATH Research Report, No. UCB-ITS-PRR-95-33, University of Southern California, September 1995.
4. "Applications of Per-Survivor Processing to Advanced Digital Satellite Communications," ESA/ESTEC Final Report (co-authored with G. E. Corazza, T. Vaidis, A. Vanelli-Coralli, S. Cioni and P. Salmi), P.O. # 170758, February 5, 2000.
5. "A Potential Software Radio Solution To A Multi-Mode Terminal for ACCORD", CEC-ACTS Final Report (co-authored with J.A.Renda, G.S.Tombras), March 29, 2000.
6. Contributor to many deliverables in CEC projects.

Appendix K

Invited talks

1. **Plenary talk**, "Synchronization Concepts in Spread Spectrum," at the 1st Conference on Spread-Spectrum Communications, Belgrade, Yugoslavia, May 1988.
2. **Plenary talk**, "Code Synchronization: A Review of Principles and Techniques," IEEE ISSSTA'94, Oulu, Finland, July 4-6, 1994.
3. **Plenary talk**, "Per Survivor Processing," PIMRC'97, Helsinki, Finland, Sept 1, 1997.
4. Invited talk, "PN Code Acquisition in DS-SS Systems," Army Research Office Review, University of Southern California, Los Angeles, California, February 1981.
5. Invited talk, "Autocorrelation Techniques for FH/LPI Detection," Brown Boveri Research Center, Zurich, Switzerland, August 25, 1984.
6. Invited talk, "Performance Measures for LPI Detectors," Army Research Office Review, October 25–26, 1984, University of Southern California.
7. Invited talk, "On the Efficiency of Spread-Spectrum/Random Access Links," Industrial Associates Review, University of Southern California, May 1985.
8. Invited talk, "LPI Detection of Spread-Spectrum Waveforms," GTE Seminar, Mountain View, California, September 1985.
9. Invited talk, "Research Results and Directions," CSI Review, University of Southern California, February 1986.
10. Invited talk, "On the Wideband Spectral Detection of Unknown Frequency Sinusoids," Northeastern University, Boston, May 1986.
11. Invited talk, "On the Wideband Spectral Detection of Unknown Frequency Sinusoids," Technical University of Aachen, Germany, August 1986.
12. Invited talk, "Detection of Unknown Frequency Sinusoids in Noise: Spectral versus Correlation Domain," Northeastern University, Boston, Massachusetts, October 23, 1987.
13. Invited talk, "Modulation Detection/Classification for Phase-Modulated Digital Signals in Broad-band Noise," GTE Seminar, Mountain View, California, November 12, 1987.
14. Invited talk, "Research Review at CSI," University of Aachen, Germany, December 1987.
15. Invited talk, "Some Thoughts on Delay Estimation and Synchronization," Communication Theory Workshop, Sedona, Arizona, April 1988.
16. Invited talk, "Delay Estimation and Code Tracking," Technical University (ETH), Zurich, Switzerland, May 1988.
17. Invited talk, "Four Spread-Spectrum Research Topics," Rockwell 1st Conference on Signal Processing, September 1988.
18. Invited talk, "Delay Estimation and Synchronization: Concepts and Comparisons," Technical University of Aachen, Germany, January 1989.
19. Invited talk, "Interference on Wideband Random Communication Signals: Detection/Classification/Parameter Estimation," JSEP Review, University of Southern California, September 1990.
20. Invited talk, "Physical, Link-Access and Topological-Level Aspects on Slotted-ALOHA Code-Division Random-Access Networks," Bellcore, Red Bank, New Jersey, November 26, 1990.
21. Invited talk, "Physical, Link-Access and Topological-Level Aspects on Slotted-ALOHA Code Division Random-Access Networks," Invited Talk, Workshop on Spread-Spectrum Potential Commercial Applications, Montebello, Canada, May 21-23, 1991.

22. Invited talk, "Spread Spectrum Code Acquisition: An Overview," University of Vienna, Austria, June 20, 1991.
23. Invited talk, "Wireless Radio Networks: Integrated-Layer System Issues and the Code-Division Random-Access Paradigm," Georgia Institute of Technology, Atlanta, Georgia, June 5, 1992.
24. Invited talk, "Physical, Link-Access and Topological-Level Aspects on ALOHA CDRA Networks," Universita Di Parma, Italy, June 17, 1992.
25. Invited talk, "Vehicle to Roadside Communication in IVHS," California Transportation Agency/PATH, U-C Berkeley, October 29, 1992
26. Invited talk, "Vehicle to Roadside Communication in IVHS," California Transportation Agency/PATH, U-C Berkeley, November 1, 1993.
27. Invited talk, "Vehicle to Roadside Communication in IVHS," California Transportation Agency/PATH, U-C Berkeley, October 13, 1994.
28. Invited talk, "Per-Survivor Processing (PSP): The Integrated Digital Receiver," University of Rome, Italy, July 8, 1996; also, Jet Propulsion Laboratory, Feb. 1997.
29. Invited talk, "Digital Likelihood Processing and Applications," at the:
 - a. University of Rome, Tor Vergata, March 25, 1998.
 - b. 6th International Workshop on Digital Signal Processing (DSP'98) Techniques for Space Applications, ESTEC, Noordwijk, The Netherlands, September 22-25, 1998.
 - c. University of Surrey, England, November 11, 1998
 - d. University of Helsinki and the University of Tampere, Finland, November 24-28, 1998.
30. **Plenary Talk**, "Telecommunications Infrastructure for Multimedia Applications", Cyprus Workshop on Multimedia, Nicosia, Cyprus, December 14, 1998.
31. Invited talk, "Towards Ubiquitous Wireless Communications: A Signal Processing Perspective", URSI Symposium, Poznan, Poland, March 2002.
32. Invited talk, "Introductory Thoughts on Flexible Radios", 2nd European Colloquium on Reconfigurable Radios, Athens, Greece, June 2002.
33. Invited talk, "Flexible Radio: A PHY-Layer Constrained-Optimization Perspective," Signal Processing for Space Communications (SPSC 2006), ESTEC, Noordwijk, The Netherlands, Sep. 2006.
34. **Plenary talk**, "Directions in Wireless Research", IEEE International Symposium on Spread Spectrum Techniques and Applications (ISSSTA) 2008, Bologna, Italy, Aug. 2008.

Appendix L

University Committee Work and Activities

Department of Electrical Engineering, University of Southern California

- Member, Graduate Admission Standards Committee, 1983.
- Chairman, Student Relations Committee, 1984, 1985.
- Member, Alumni Support Committee, 1984.
- Member, Part-Time Instructors Committee, 1984, 1985, 1990.
- Chairman, New Syllabus Development Committee, 1984.
- Member, Educational Policy and Planning Committee, 1986, 1987, 1988.
- Chairman, CSI Graduate Course Curriculum, 1987.
- Coordinator, CSI Seminar Series, 1982, 1986, 1987, 1989 –1990.
- Member, Faculty Promotion and Tenure Committees, 1988-Present.
- Chairman, CSI PhD Admission Committee, 1990 – Present.
- Member, Assistant Professor Merit Review Committee, 1990.
- Co-Director, Communication Sciences Institute, 1990-1993.
- Member, EE-Systems Executive Committee, 1992-93.
- Member, Strategic Planning Committee, EE-Systems, 1992-93.
- Co-ordinator, Faculty Recruitment for CSI, 1992-93.

School of Engineering, University of Southern California

- Chairman, Faculty Research and Innovation Fund Awards, Spring 1991.