

# **Chrysostomos L. Max Nikias**

**Professor of Electrical Engineering and Classics**

**Malcolm R. Currie Chair  
in Technology and the Humanities**

**President Emeritus and Life Trustee**

**University of  
Southern California**

***Curriculum Vitae***

**August 2018**

## 1. EXECUTIVE SUMMARY

Dr. C. L. Max Nikias is currently a Professor of Electrical Engineering and Classics at the University of Southern California (USC), the holder of the Malcolm R. Currie Chair in Technology and the Humanities, President Emeritus and a Life Trustee of USC. He has been at USC since 1991, and in addition to his work as a professor, has served as founding director of the Integrated Media Systems Center, an NSF Engineering Research Center (1995-2001), dean of the Viterbi School of Engineering (2001-2005), provost and executive vice president (2005-2010), and president (2010-2018).

During his tenure as president, USC emerged as a global research university with an undisputed academically-elite status, due to a number of strategic initiatives that included: recruiting a cadre of transformative, world-class faculty and accelerating the expansion of the university's academic medical enterprise; broadening USC's international presence; dramatically improving the breadth, diversity, and quality of the university's outstanding student body; improving the university's infrastructure, including the development of the USC Village; and successfully bringing to closure the largest fundraising campaign in the history of higher education.

Dr. Nikias is recognized internationally for his pioneering research on digital signal processing, digital media systems, and biomedicine. The U.S. Department of Defense has adopted a number of his innovations and patents in sonar, radar, and communication systems. He has authored more than 275 journal articles and conference papers, three textbooks, and eight patents, and has mentored more than 30 Ph.D. and postdoctoral scholars. Three of his publications received prestigious best papers awards.

Dr. Nikias writes and speaks frequently about a range of nationally significant topics, including the value of—and access to—higher education; the current state and future of online education; the continued importance of the arts and humanities; the art of leadership through the classics; and the role of elite research universities, particularly as economic drivers.

Dr. Nikias is a member of the National Academy of Engineering, a fellow of the American Academy of Arts and Sciences, a charter fellow of the National Academy of Inventors (NAI), an associate member of the Academy of Athens, a foreign member of the Russian Academy of Sciences, a life fellow of the Institute of Electrical and Electronics Engineers (IEEE), and a fellow of the American Association for the Advancement of Science. Among numerous other honors, he has received the IEEE Simon Ramo Medal, an Academic Leadership Award from Carnegie Corporation of New York, the Ellis Island Medal of Honor, the Woodrow Wilson Award for Public Service, UNICEF's Spirit of Compassion Award, the State University of New York at Buffalo's Distinguished Alumni Award, and honorary doctorates from his *alma mater*, the National Technical University of Athens; Hebrew Union College – Jewish Institute of Religion; University of Cyprus; University of Crete; University of Piraeus; and University of Strathclyde.

As president of USC, Dr. Nikias led a \$6 billion fundraising campaign, which—at the time of its launch—was the largest in the history of higher education. In six and a half years, USC's campaign surpassed the \$6 billion mark—18 months ahead of schedule—bringing to the

university, on the average, \$900 million per year. The fundraising campaign raised a total of \$7 billion in eight years. During Dr. Nikias' tenure, USC consistently ranked among the top five universities, along with Stanford and Harvard, in cash charitable donations.

During Dr. Nikias' tenure as president, the university advanced a major capital construction program that included Wallis Annenberg Hall, Dauterive Hall, Fertitta Hall, Michelson Hall, the Kaufman International Dance Center, the McKay Center, Uytengsu Aquatics Center, the Engemann Student Health Center, a new Cinematic Arts building, and the University Club at Stoops Hall, as well as the Soto Building, Currie Residential Hall, and Norris Consultation Center on the Health Sciences Campus, and beautification projects for both of USC's campuses. The most prominent project, though, was the USC Village, a 1.3 million square-foot center of eight student residential colleges, that opened in 2017 and increased the University Park Campus' footprint by a third, entirely reimagining the university's landscape.

In recognition of his efforts to renew USC's athletics heritage, *The New York Times* selected Dr. Nikias as one of a small number of national figures "who make sports' little corner of the world a better place." He also served as chair of the College Football Playoff (CFP) Board of Managers (2015-18).

From June 2005 to August 2010, Dr. Nikias served as USC's provost and executive vice president, during which time he was charged with accelerating the academic momentum that USC had experienced in recent years. He was instrumental in bringing USC trustee Steven Spielberg's Shoah Foundation Institute and its vast video archive of 55,000 testimonies of Holocaust survivors to USC. Dr. Nikias also established the university's Edward R. Roybal Institute on Aging, Stevens Center for Innovation, U.S.-China Institute, and Levan Institute for Humanities and Ethics. He launched Visions and Voices, USC's acclaimed campus-wide arts and humanities initiative, as well as a grant program to advance scholarship in the humanities and social sciences. Dr. Nikias spearheaded the integration of the Keck School of Medicine of USC's faculty practice plans, and oversaw the transfer of University Hospital and USC Norris Cancer Hospital from Tenet Healthcare Corporation to the university.

From 2001 to 2005, Dr. Nikias served as dean of the USC Viterbi School of Engineering, solidifying its position as a top-tier engineering school. He directed the expansion of the school's biomedical engineering enterprise and developed its distance-learning program into one of the largest in the country at that time. He oversaw the development of the school's cutting-edge Tutor Hall of Engineering. He also established key partnerships with corporations, among them Pratt & Whitney, Airbus, Boeing, Chevron, and Northrop Grumman, and led an unprecedented fundraising campaign that brought in more than \$250 million, capped by a historic \$52 million school-naming gift from Andrew and Erna Viterbi.

Dr. Nikias graduated with honors from Famagusta Gymnasium, a school that emphasized sciences, history, and Greco-Roman classics. He received a diploma from the National Technical University of Athens, also known as National Metsovion Polytechnic, the oldest and most prestigious higher education institution of Greece, and later earned his M.S. and Ph.D. from the State University of New York at Buffalo.

Dr. Nikias was awarded the Aristeia medal, the Republic of Cyprus' highest honor in the letters, arts, and sciences. In addition, he received the USC Black Alumni Association's Thomas

Kilgore Service Award, the Los Angeles Police Department's Jack Webb Award, and earned a commendation for cutting-edge research from the governor of California.

His wife, Niki C. Nikias, received a bachelor's degree in accounting from the Athens University of Economics and Business in Greece and a master's degree in business administration with a specialization in finance from the State University of New York at Buffalo. She worked as a corporate accountant in Athens and London, and as an accountant and finance consultant in the United States before taking leave to raise their two daughters, Georgiana and Maria.

The USC Alumni Association named Dr. and Mrs. Nikias honorary alumni of USC. The family has kept a home in the Palos Verdes Peninsula since 1991. Georgiana graduated from the USC Dornsife College of Letters, Arts and Sciences with a double major in English and archaeology and later earned a master's degree in world archaeology from Oxford University and a J.D. degree from the USC Gould School of Law. She was inducted into the California Bar in 2012. Maria earned her B.A. degree in broadcast journalism at the USC Annenberg School for Communication and Journalism with a minor in entrepreneurship. After working as an associate producer for three years at ABC News' national bureau, she earned an MBA at the USC Marshall School of Business.

## **2. GENERAL INFORMATION**

### **2.1 Personal Data**

**Chrysostomos L. Max Nikias**

Business Address: University of Southern California  
Bovard Administration Building  
3551 Trousdale Parkway  
Suite: ADM 102  
Los Angeles, California 90089-0012

### **2.2 Education**

Doctor of Philosophy in Electrical Engineering  
State University of New York at Buffalo, February 1982

Master of Science in Electrical Engineering  
State University of New York at Buffalo, February 1980

Diploma in Electrical and Mechanical Engineering  
National Technical University of Athens, Greece, June 1977

### **2.3 Selected Awards and Honors**

Member of the National Academy of Engineering (NAE) (2008)

Fellow of the American Academy of Arts and Sciences (2013)

Charter Fellow of the National Academy of Inventors (NAI) (2012)

Associate Member of the Academy of Athens (2016)

Foreign Member of the Russian Academy of Sciences (2017)

Life Fellow of the Institute of Electrical and Electronics Engineers (IEEE)

Fellow of the American Association for the Advancement of Science (AAAS) (2007)

IEEE Simon Ramo Medal (2008)

Academic Leadership Award from Carnegie Corporation of New York (2015)

The Ellis Island Medal of Honor (2016)

The Woodrow Wilson Award for Public Service (2015)

Spirit of Compassion Award from UNICEF (2016)

Fellow of the California Council on Science and Technology (CCST)

Honorary degree from the National Technical University of Athens (2015)

Honorary degree from the University of Cyprus (2000)

Honorary degree from Hebrew Union College – Jewish Institute of Religion (2011)

Honorary degree from the University of Crete (2016)

Honorary degree from the University of Piraeus (2016)

Honorary degree from University of Strathclyde (2017)

Aristeio Medallion in the Letters, Arts, and Sciences, Republic of Cyprus (2005)

Clifford C. Furnas Memorial Award, Alumni Association of the University at Buffalo (2008)

Distinguished Alumni Award, Alumni Association of the University at Buffalo (2012)

Los Angeles Police Department’s Jack Webb Award (2014)

Thomas Kilgore Service Award, USC Black Alumni Association (2007)

Aristeio Award, American Hellenic Council (2008)

IEEE Signal Processing Best Paper Award (1988)

Fred W. Ellersick Award of Outstanding Unclassified Paper at Military Communications (MILCOM) (1992)

IEE A. H. Reeves Premium Best Paper Award (2002)

Formally commended by California Governor Gray Davis for “helping California successfully meet the challenge of the new millennium through cutting-edge research” (January 2000)

Honored by the California Legislative Assembly for exemplary record of leadership, member resolution #601 (February 28, 2001)

Honored by Loyola Marymount University for contributions to sciences (2001)

Member of the Russian Academy of Natural Sciences

Member, Phi Kappa Phi

Member, Tau Beta Pi

Outstanding instructors award of the National Technological University (Distance Learning University in USA) (1993)

Invited to and testified before a California Senate Hearing on the growth of the multimedia industry (May 1994). Invited to and testified before a California Assembly Hearing on the impact of digital technologies in filmmaking and interactive television programming (August 2000)

Testified before the National Science Board on academic competitiveness challenges (March 2006)

National Fellowship (Honors) throughout undergraduate school at National Technical University of Athens, Greece (1972-1977)

### 3. RESEARCH EXPERIENCE

#### Research Supervision as Major Advisor

##### A. Summary Numbers

	Completed
<b>Ph.D. Theses:</b>	<b>23</b>
<b>Post Doctoral Fellows:</b>	<b>7</b>
<b>M.S. Theses:</b>	<b>17</b>

##### B. Ph.D. Theses

Janghoon Yang, "Blind Multi-user Detection from Single-Sensor based on Higher-Order Statistics," Ph.D. Thesis, University of Southern California. (Supervised since September 1998.)

John Bodenshaz, "Adaptive Signal Processing with  $\alpha$ -Stable Methods for Communication Receivers," Ph.D. Thesis, University of Southern California. October 1998 (Supervised since September 1994.)

Ece Saygun, "Adaptive Signal Processing with the Gradually Increasing Filter Length (GRINFIL) Method," Ph.D. Thesis, University of Southern California. October 1998 (Supervised since September 1994.)

Xinyu Ma, "Array Processing," Ph.D. Thesis, University of Southern California. November 1998 (Supervised since September 1993.)

Russell H. Lambert, "Robust Deconvolution," Ph.D. Thesis, University of Southern California, continuing. October 1997 (Supervised since September 1993.)

Mehmet I. Gurelli, "Adaptive Blind Deconvolution," Ph.D. Thesis, University of Southern California. April 1997 (Supervised since January 1992.)

Sam Heidari, "Wavelets in Signal Processing," Ph.D. Thesis, University of Southern California. October 1996 (Supervised since January 1993.)

Jun Shen, "Impulsive Interference Cancellation," Ph.D. Thesis, University of Southern California, April 1995. (Supervised since January 1993.)

Panagiotis Tsakalides, "Robust Beamforming," Ph.D. Thesis, University of Southern California, September 1995. (Supervised since September 1992.)



Dae C. Shin, "Interference Cancellation with Higher-Order Spectra," Ph.D. Thesis, University of Southern California, April 1995. (Supervised since January 1992.)

Elisa Sayrol, "Image Object Classification," Ph.D. Thesis, University of Barcelona, February 1994. (Supervised since June 1991.)

Min Shao, "Signal Processing with Alpha-Stable Processes," Ph.D. Thesis, University of Southern California, September 1993. (Supervised since September 1991.)

Yuanjie Chen, "Blind Deconvolution with Memory Nonlinearity," Ph.D. Thesis, University of Southern California, September 1993. (Supervised since September 1990.)

Anthony Bessios, "Blind Equalization and Adaptive Noise Cancellation with Higher-Order Spectra," Ph.D. Thesis, University of Southern California, December 1992. (Supervised since 1989.)

Javier R. Fonollosa, "Wigner Polyspectra," Ph.D. Thesis, University of Southern California, September 1992. (Supervised since 1990.)

Dana H. Brooks, "The Complex Cepstrum of Higher-Order Cross-Spectra: Definition, Properties, and Applications," Ph.D. Thesis, Northeastern University, June 1991. (Supervised since June 1987.)

Athina Petropulu, "Signal Image Reconstruction from the Phase of the Bispectrum," Ph.D. Thesis, Northeastern University, December 1990. (Supervised since June 1988.)

Christos K. Papadopoulos, "Detection and Estimation of Transient Signals with Higher-Order Spectra," Ph.D. Thesis, Northeastern University, September 1990. (Supervised since June 1987.)

Dimitris Hatzinakos, "Blind Equalization Based on Polyspectra," Ph.D. Thesis, Northeastern University, December 1989. (Supervised since July 1986.)

Hsing-Hsing Chiang, "Adaptive Nonminimum Phase Signal Reconstruction and Time Delay Estimation via Cumulants," Ph.D. Thesis, Northeastern University, June 1989. (Supervised since October 1985.)

Renlong Pan, "Nonminimum Phase System Identification and Time Delay Estimation via Higher-Order Cumulants," Ph.D. Thesis, Northeastern University, September 1988. (Supervised since October 1985.)

Taikang Ning, "Optimal Multichannel AR Power Spectrum Estimation (PSE) and PSE with Uncertainty in Sample Location of Correlation Measurements," Ph.D. Thesis, University of Connecticut, June 1986. (Supervised since September 1983.)

Mysore R. Raghuvver, "Bispectrum and Multidimensional Power Spectrum Estimation Algorithms Based on Parametric Models with Applications to the Analysis of ECG Data," Ph.D. Thesis, University of Connecticut, December 1984. (Supervised since January 1982.)

### **C. Post Doctoral Fellows**

Marilli Rupi, "Array Signal Processing," 1997 – 1998.

Nahiro Toda, "Biomedical Signal Processing," 1995 – 1996.

Panos Tsakalides, "Nonlinear Signal Processing," 1995 – 1998.

Dae Shin, "Adaptive Signal Processing," 1994 – 1996.

Javier R. Fonollosa, "Time-Frequency Distributors," 1992 – 1994.

Michel Gaeta, "Array Signal Processing," 1992 – 1993.

George Tsihrintzis, "Nonlinear Signal Processing with Applications," 1992 – 1995.

### **D. M.S. Theses**

Ji Chen, "Face Recognition," M.S. Project, University of Southern California, December 1997.

Panayotis Georgiou, "Audio Array Processing," M.S. Project, University of Southern California, December 1997.

Panayotis Reveliotis, "Computer Interfaces," M.S. Project, University of Southern California, December 1997.

Shan Gao, "Inverse Problem of Electrocardiography," M.S. Thesis, Northeastern University, September 1991.

Timoleon Vaidis, "Time Delay Estimation with Higher-Order Spectra," M.S. Thesis, Northeastern University, June 1991.

Antonis Bessios, "Blind Equalization with Higher-Order Spectra," M.S. Thesis, Northeastern University, August 1990.

Fang Liu, "The Cepstrum of the Bicoherence and Cross-Bispectrum for Time Delay Estimation and Nonminimum Phase System Identification," M.S. Thesis, Northeastern University, June 1989.

Jue Zheung, "Efficient VLSI Implementation of Spectrum Estimation Algorithms," M.S. Thesis, Northeastern University, August 1988.

Athina Petropulu, "High-Resolution Time Delay Estimation," M.S. Thesis, Northeastern University, June 1988.

Dana Brooks, "Time and Frequency Domain Inverse Models for Electrocardiography," M.S. Thesis, Northeastern University, June 1988.

Sylvia Rubin, "A New Family of Advanced Statistical Signal Processing Methodologies for the Detection, Localization, and Quantification of Acute Myocardial Ischemia," M.S. Thesis, Northeastern University, May 1987.

Mary Girard, "A New Filter Structure for Efficient Implementation of Two-Dimensional VLSI FIR Filters Using a Massively Parallel Architecture," M.S. Thesis, University of Connecticut, April 1987.

Tung-Yun Shen, "The Power Spectrum Approach to the Inverse Problem of Electrocardiography," M.S. Thesis, University of Connecticut, December 1986.

Bina Paramasivaiah, "Geophysical Signal Processing and Deconvolution of Non-Gaussian Processes," M.S. Thesis, University of Connecticut, June 1986.

Hsing-Hsing Chiang, "Efficient VLSI Implementations of Nonlinear Digital Filters," M.S. Thesis, University of Connecticut, May 1985.

Benjamin Helme, Jr., "Improved Spectrum Performance via a Data-Adaptive Burg Technique," M.S. Thesis, University of Connecticut, May 1984.

Andreas P. Chrysafis, "Modular and Regular Realizations of Multidimensional Filters via LU Decomposition Theorem," M.S. Thesis, University of Connecticut, May 1984.

## 4. PUBLICATIONS

### SUMMARY NUMBERS

A. Books	3
B. Book Chapters and Tutorial Review Papers	12
C. Refereed Papers Appearing in Scientific Journals	83
D. Refereed Papers Appearing in Conference Proceedings	180
E. Patents	<u>8</u>
<b>Total: 286</b>	

#### A. Books

C. L. Nikias and M. Shao, *Signal Processing with Alpha-Stable Distributions and Applications*, J. Wiley & Sons, Inc., 1995.

C. L. Nikias and A. Petropulu, *Higher-Order Spectra Analysis: A Nonlinear Signal Processing Framework*, series editor A. V. Oppenheim, Prentice Hall Signal Processing Series, Prentice Hall, Inc., Englewood Cliffs, NJ, 1993.

J. G. Proakis, C. Rader, F. Ling, and C. L. Nikias, *Advanced Signal Processing*, Macmillan Publishing Company, 1992.

#### B. Book Chapters and Tutorial Review Papers

D. McLeod, U. Neumann, C.L. Nikias, A.A. Sawchuk, "The Move Toward Media Immersion- Integrated Media Systems," *IEEE Signal Processing Magazine*, **16**(1), pp. 33-43, January 1999.

C. L. Nikias, "Integrated Media Systems," *IEEE Signal Processing Magazine*, **16**(1), January 1999.

C. L. Nikias, "Riding the New Integrated Media Systems Wave," *IEEE Signal Processing Magazine*, 14(4), April 1997.

P. Tsakalides and C. L. Nikias, "Deviation from Normality in Statistical Signal Processing: Parameter Estimation with Alpha-Stable Distributions," chapter in book *A Practical Guide to Tails: Statistical Techniques for Analyzing Heavy Tailed Distributions*, edited by R. Adler, R. Feldman and M. S. Taqqu, Birkhauser, Boston, MA, 1996.

G. A. Tsihrintzis and C. L. Nikias, "Alpha-Stable Impulsive Interference: Canonical Statistical Models and Design and Analysis of Maximum Likelihood and Moment-Based Signal Detection Algorithms," chapter in book *Control and Dynamis System*, edited by C. T. Leondes, Academic Press, San Diego, CA, vol. 78, 1996.

D. Hatzinakos and C. L. Nikias, "Blind Equalization Based on Higher-Order Statistics," chapter in the book *On Blind Blind Deconvolution*, edited by S. Haykin, Prentice Hall, Inc., 1993.

C. L. Nikias and J. M. Mendel, "Signal Processing with Higher-Order Spectra," *IEEE Signal Processing Magazine*, **10**(3), pp. 10-37, July 1993.

M. Shao and C. L. Nikias, "Signal Processing with Fractional Lower-Order Moments: Stable Processes and Their Applications," *Proceedings of the IEEE*, **81**(7), pp. 986-1010, July 1993.

C. L. Nikias, "Higher-Order Spectral Analysis," chapter in the book *Advances in Spectrum Estimation*, edited by S. Haykin, Prentice Hall, Inc., 1991.

C. L. Nikias and M. R. Raghuveer, "Bispectrum Estimation: A Digital Signal Processing Framework," *Proceedings of the IEEE*, **75** (7), pp. 869-891, July 1987.

J. H. Siegel, B. Coleman, C. L. Nikias, R. M. Tacchino, J. Stoklosa, K. Cotter, R. N. Ulf Borg, K. C. Goh, S. Goodavzi, and D. Sanford, "Computer Applications to Trauma Patient Evaluation and Care," chapter in the book *Trauma Care: Medical Management*, edited by R. A. Cowley, A. Conn, and C. M. Dunham, J. B. Lippincott Co., Vol. 2, pp. 98-130, Philadelphia, PA, 1987.

A.N. Venetsanopoulos and C. L. Nikias, "Design and Realization of Multidimensional Digital Filters via Decomposition Approaches," chapter in the book *Advances in Geophysical Data Processing*, Vol. 2, pp. 263-305, edited by M. Simaan, JAI Press, Inc., Greenwich, CT, 1985.

### **C. Refereed Papers Appearing in Scientific Journals**

P. Tsakalides, P. Reveliotis, and C. L. Nikias, "Scalar Quantization of Heavy-tailed Signals," *IEE Visual Image Signal Processing*, **147** (5), October 2000.

C. L. Nikias, P. Tsakalides, and R. Raspanti, "Joint Target Angle and Doppler Estimation in Stable Impulsive Interference," *IEEE Transactions on Aerospace and Electronic Systems*, **35** (2), April 1999.

P. Tsakalides and C. L. Nikias, "Robust Space-Time Adaptive Processing (STAP) in Non-Gaussian Clutter Environments," *IEE Proceedings – Radar, Sonar and Navigation*, **146** (2), April 1999.

J. Shen and C. L. Nikias, "General LLP, 9 Metric Estimator of Arbitrary Complex Impulsive Interference In Linear Systems," *IEEE Transactions on Signal Processing*, **46** (3), pp. 598-608, March 1998.

- J.S. Bodenschatz and C. L. Nikias, "Symmetric Alpha-Stable Filter Theory," *IEEE Transactions on Signal Processing*, **45** (9), pp. 2301 – 2306, September 1997.
- J.S. Bodenschatz and C. L. Nikias, "Recursive Local Orthogonality Filtering," *IEEE Transactions on Signal Processing*, **45** (9), pp. 2293 – 2300, September 1997.
- X. Ma and C. L. Nikias, "Joint Estimation of Time Delay and Frequency Delay in Impulsive Noise Using Fractional Lower-Order Statistics," *IEEE Transactions on Signal Processing*, **44** (11), pp. 2669-2687, November 1996.
- E. Sayrol, C. L. Nikias, and T. Gasull, "Image Restoration Using the W-Slice Method," *IEEE Transactions on Image Processing*, **4** (8), pp. 1174-1181, November 1996.
- S. Heidari and C. L. Nikias, "Co-Channel Interference Mitigation in the Time-Scale Domain: The CIMTS Algorithm," *IEEE Transactions on Signal Processing*, **44** (9), pp. 2151-2162, September 1996.
- G. A. Tsihrintzis and C. L. Nikias, "Data-Adaptive Algorithms for Signal Detection in Impulsive Noise Modeled as a SubGaussian Alpha-Stable Process," *IEEE Transactions on Signal Processing*, **45** (7), pp. 1873-1878, July 1996.
- P. Tsakalides and C. L. Nikias, "The Robust Covariation-Based MUSIC (ROC-MUSIC) Algorithm for Bearing Estimation in Impulsive Noise Environments," *IEEE Transactions on Signal Processing*, vol. SP-44, pp. 1623-1633, July 1996.
- S. Heidari, G. A. Tsihrintzis, C. L. Nikias, and E. Jonckheere, "Self-Similar Set Identification in the Time-Scale Domain," *IEEE Transactions on Signal Processing*, vol. SP-44, pp. 1568-1572, June 1996.
- G. A. Tsihrintzis and C. L. Nikias, "Fast Estimation of the Parameters of Alpha-Stable Impulsive Interference," *IEEE Transactions on Signal Processing*, vol. SP-44, pp. 1492-1503, June 1996.
- G. A. Tsihrintzis and C. L. Nikias, "Recent Results in Applications and Processing of Alpha-Stable-Distributed Time Series," *Journal of the Franklin Institute*, vol. 333B, pp. 467-497, 1996.
- G. A. Tsihrintzis and C. L. Nikias, "Exact Maximum Likelihood Identification of MA(1) Systems Driven by Cauchy Noise of Unknown Dispersion," *IEEE Signal Processing Letters*, vol. SPL--2, pp. 224-226, December 1995.
- X. Ma and C. L. Nikias, "Parameter Estimation and Blind Channel Identification in Impulsive Signal Environments," *IEEE Transactions on Signal Processing*, **43** (12), pp. 2649-2664, December 1995.

- A. Bessios and C. L. Nikias, "POTEA: The Power Cepstrum and Tricoherence Equalization Algorithm," *IEEE Transactions on Communications*, **43** (11), pp. 2667-2671, November 1995.
- D. C. Shin and C. L. Nikias, "Complex Ambiguity Function Using Non-Stationary Higher-Order Cumulant Estimates," *IEEE Transactions of Signal Processing*, **43** (11), pp. 2649-2664, November 1995.
- P. Tsakalides and C. L. Nikias, "Maximum Likelihood Localization of Sources in Noise Modeled as a Stable Process," *IEEE Transactions on Signal Processing*, **43** (11), pp. 2700-2713, November 1995.
- G. A. Tsihrintzis and C. L. Nikias, "Incoherent Receivers in Alpha-Stable Impulsive Noise," *IEEE Transactions on Signal Processing*, vol. SP--43, pp. 2225-2229, September 1995.
- G. A. Tsihrintzis and C. L. Nikias, "Performance of Optimum and Suboptimum Receivers in the Presence of Impulsive Noise Modeled as an Alpha-Stable Process," *IEEE Transactions on Communications*, vol. 43, pp. 904-914, March 1995.
- G. A. Tsihrintzis and C. L. Nikias, "On the Detection of Impulsive Stochastic Transients over Gaussian Background Noise," *Signal Processing*, vol. 41 (1995), pp. 175-190, February 1995
- J. Shen and C. L. Nikias, "Estimation of Multi-Level Digital Signals in the Presence of Arbitrary Impulsive Interference," *IEEE Transactions on Signal Processing*, vol. 43 (1), pp. 196-203, January 1995.
- M. I. Gurelli and C. L. Nikias, "EVAM: An Eigenvector-Based Algorithm for Multichannel Blind Deconvolution of Input Colored Signals," *IEEE Transactions on Signal Processing*, **43** (1), pp. 134-149, January 1995.
- P. Tsakalides and C. L. Nikias, "The Robust Covariation-Based MUSIC (ROC-MUSIC) Algorithm for Bearing Estimation in Impulsive Noise Environments," *IEEE Transactions on Signal Processing*, 29 pages, November 15, 1994.
- D. C. Shin and C. L. Nikias, "Adaptive Interference Canceler for Narrowband and Wideband Interferences Using Higher-Order Statistics," *IEEE Transactions on Signal Processing*, **42**(10), pp. 2715-2728, October 1994.
- D. C. Shin and C. L. Nikias, "Estimation of Frequency-Delay of Arrival (FDOA) Using Fourth-Order Statistics in Unknown Correlated Gaussian Noise Sources," *IEEE Transactions on Signal Processing*, **42**(10), pp. 2771-2780, October 1994.
- Y. Chen and C. L. Nikias, "Identifiability of a Band-Limited System from Its Cyclostationary Output Autocorrelation," *IEEE Transactions on Signal Processing*, **42**(2), pp. 483-485, February 1994.

J. R. Fonollosa and C. L. Nikiias, "Analysis of Finite-Energy Signals Using Higher-Order Moments- and Spectra-Based Time-Frequency Distributions," *Signal Processing*, **36**, pp. 315-328, 1994.

J. R. Fonollosa and C. L. Nikiias, "Analysis and Detection of Finite Energy Signals Using Higher-Order Based Time-Frequency Distributions," *EURASIP Special Issue of Signal Processing on Higher-Order Statistics*, 1994.

A. P. Petropulu and C. L. Nikiias, "Blind Deconvolution of Stochastic Signals Using Higher-Order Cepstra Operations," *Special Issue of IEE Proceedings Part F on Applications of Higher-Order Statistics*, **140**(6), pp. 356-361, December 1993.

D. H. Brooks and C. L. Nikiias, "Multichannel Adaptive Blind Deconvolution Using the Complex Cepstrum of Higher-Order Cross-Spectra," *IEEE Transactions on Signal Processing*, **41**(9), pp. 2928-2934, September 1993.

D. H. Brooks and C. L. Nikiias, "The Cross-Bicepstrum: Definition, Properties, and Application for Simultaneous Reconstruction of Three Nonminimum Phase Signals," *IEEE Transactions on Signal Processing*, **41**(7), pp. 2389-2404, July 1993.

M. Shao and C. L. Nikiias, "Signal Processing with Fractional Lower-Order Moments: Stable Processes and Their Applications," *Proceedings of the IEEE*, **81**(7), pp. 986-1010, July 1993.

A. P. Petropulu and C. L. Nikiias, "Blind Deconvolution Using Signal Reconstruction from Partial Higher-Order Cepstral Information," *IEEE Transactions on Signal Processing*, **41**(6), pp. 2088-2095, June 1993.

J. R. Fonollosa and C. L. Nikiias, "Wigner Higher-Order Spectra: Definition, Properties, Computation, and Application to Transient Signal Analysis," *IEEE Transactions on Signal Processing*, **41**(1), pp. 245-266, January 1993.

C. Bessios and C. L. Nikiias, "Adaptive Blind Equalization with Multichannel CRIMNO Algorithms," *Digital Signal Processing*, **3**, pp. 16-28, January 1993.

Y. Chen, C. L. Nikiias, and J. G. Proakis, "Blind Equalization with Criterion with Memory Nonlinearity," *Optical Engineering Journal*, **31**(6), pp. 1200-1210, June 1992.

A. Petropulu and C. L. Nikiias, "Signal Reconstruction from the Phase of the Bispectrum," *IEEE Transactions on Signal Processing*, **40**(3), pp. 601-610, March 1992.

C. Bessios and C. L. Nikiias, "FFT-Based Bispectrum Computation on Polar Rasters," *IEEE Transactions on Signal Processing*, **39**(11), pp. 2535-2539, November 1991.



- P. Forster and C. L. Nikias, "Bearing Estimation in the Bispectrum Domain," *IEEE Transactions on Signal Processing*, **39**(10), September 1991.
- D. Hatzinakos and C. L. Nikias, "Blind Equalization Using a Tricepstrum Based Algorithm," *IEEE Transactions on Communications*, **39**(5), May 1991.
- A. P. Petropulu, C. L. Nikias, and J. G. Proakis, "Efficient Realization Structure of the *A-Priori* Lattice-Ladder Recursive Least-Squares Algorithm," *IEEE Transactions on Signal Processing*, **39**(4), April 1991.
- H. Brooks, C. L. Nikias, and J. H. Siegel, "Comparison and Testing of Least-Squares Time Domain Inverse Solutions in Electrocardiography," *Journal on Biomedical Engineering*, **12**, pp. 503-518, November 1990.
- C. K. Papadopoulos and C. L. Nikias, "Parameter Estimation of Exponentially Damped Sinusoids with Higher-Order Statistics," *IEEE Transactions on Acoustics, Speech, and Signal Processing*, **38**(8), pp. 1424-1436, August 1990.
- A. Petropulu and C. L. Nikias, "Complex Cepstrum and Bicepstrum: Analytic Performance Evaluation and Applications," *IEEE Transactions on Acoustics, Speech, and Signal Processing*, **38**(7), pp. 1246-1256, July 1990.
- T. Ning and C. L. Nikias, "Power Spectrum Estimation with Randomly Spaced Correlation Samples," *IEEE Transactions on Acoustics, Speech, and Signal Processing*, **38**(6), June 1990.
- H. H. Chiang and C. L. Nikias, "A New Method for Adaptive Time Delay Estimation," *IEEE Transactions on Acoustics, Speech, and Signal Processing*, **38**(2), pp. 209-219, February 1990.
- D. Hatzinakos, C. L. Nikias, and A. N. Venetsanopoulos, "A Massively Parallel Architecture for Quadratic Digital Filters," *IEEE Transactions on Circuits and Systems*, **37**, January 1990.
- H. H. Chiang and C. L. Nikias, "Adaptive Nonminimum Phase System Identification and Deconvolution Based on Cumulants," *IEEE Transactions on Automatic Control*, **35**, pp. 36-47, January 1990.
- D. Hatzinakos and C. L. Nikias, "Estimation of Multipath Channel Response in Frequency Selective Fading Channels," *IEEE Journal on Selected Areas in Communications, Special Issue on Portable and Mobile Communications II*, **7**(1), pp. 12-19, January 1989.
- C. L. Nikias and H. H. Chiang, "Higher-Order Spectrum Estimation via Non-Causal Autoregressive Modeling and Deconvolution," *IEEE Transactions on Acoustics, Speech, and Signal Processing*, **36**(12), pp. 1911-1913, December 1988.

- C. L. Nikias and R. Pan, "Time Delay Estimation in Unknown Gaussian Spatially Correlated Noise," *IEEE Transactions on Acoustics, Speech, and Signal Processing*, **36**(11), pp. 1706-1714, November 1988.
- C. L. Nikias, "ARMA Bispectrum Estimation to the Identification of Nonminimum Phase Systems," *IEEE Transactions on Acoustics, Speech, and Signal Processing*, **36**(4), pp. 186-205, April 1988.
- R. Pan and C. L. Nikias, "The Complex Cepstrum of Higher-Order Cumulants and Nonminimum Phase Signal Reconstruction," *IEEE Transactions on Acoustics, Speech, and Signal Processing*, **36**(2), pp. 513-524, February 1988.
- A. C. P. Loui, A. N. Venetsanopoulos, and C. L. Nikias, "Modular Architectures for Two-Dimensional Digital Signal Processing," *IEEE Transactions on Circuits and Systems*, **35**(1), pp. 43-56, January 1988.
- Y. Lou, C. L. Nikias, and A. N. Venetsanopoulos, "Efficient VLSI Array Processing Structures for Adaptive Quadratic Digital Filters," *Circuits, Systems, and Signal Processing, Special Issue on Array Processing*, **7**(2), pp. 253-273, 1988.
- C. L. Nikias and R. Pan, "ARMA Modeling of Fourth-Order Cumulants and Phase Estimation," *Circuits, Systems, and Signal Processing*, **7**(3), pp. 291-325, 1988.
- J. H. Siegel, C. L. Nikias, M. Fabian, T. C. Vary, T. Ning, K. C. Goh, and S. Goodarzi, "Advanced Signal Processing Method for the Detection, Localization, and Quantification of Acute Myocardial Ischemia," *Surgery*, **102**(2), pp. 215-228, August 1987.
- R. Pan and C. L. Nikias, "Phase Reconstruction in the Trispectrum Domain," *IEEE Transactions on Acoustics, Speech, and Signal Processing*, **35**(6), pp. 895-897, June 1987.
- 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*, **35**(6), pp. 897-900, June 1987.
- C. L. Nikias and A. N. Venetsanopoulos, "Sufficient Condition for Extendability," *IEEE Transactions on Acoustics, Speech, and Signal Processing*, **35**(5), pp. 707-708, May 1987.
- J. H. Siegel, C. L. Nikias, M. R. Raghuveer, M. Fabian, K. Goh, and D. Sanford, "Epicardial Electrical Activation via Frequency Wavenumber Spectrum Estimation for the Characterization of Arrhythmiagenic States," *Journal of Electrocardiology*, **20**(5), pp. 329-351, 1987.
- H. H. Chiang, C. L. Nikias, and A. N. Venetsanopoulos, "Efficient Implementations of Quadratic Filters," *IEEE Transactions on Acoustics, Speech, and Signal Processing*, **34**(6), pp. 1511-1528, December 1986.

T. Ning and C. L. Nikias, "Multichannel AR Spectrum Estimation: The Optimum Approach in the Reflection Coefficient Domain," *IEEE Transactions on Acoustics, Speech, and Signal Processing*, **34**(5), pp. 1139-1152, October 1986.

H. H. Chiang, C. L. Nikias, and A. N. Venetsanopoulos, "Reconfigurable Systolic Array Implementation of Quadratic Digital Filters," *IEEE Transactions on Circuits and Systems*, **33**(8), pp. 845-848, August 1986.

C. L. Nikias, M. R. Raghuveer, J. H. Siegel, and M. Fabian, "Zero-Delay Wavenumber Spectrum Estimation for the Analysis of Array ECG Signals - An Alternative to Isopotential Mapping," *IEEE Transactions on Biomedical Engineering*, **33**(4), pp. 435-452, April 1986.

M. R. Raghuveer and C. L. Nikias, "Bispectrum Estimation via AR Modeling," *Signal Processing, Special Issue on Modern Trends of Spectral Analysis*, **10**(1), pp. 35-48, January 1986.

C. L. Nikias and M. R. Raghuveer, "Multidimensional Parametric Spectral Estimation," *Signal Processing*, **9**(3), pp. 191-205, October 1985.

M. R. Raghuveer and C. L. Nikias, "Bispectrum Estimation: A Parametric Approach," *IEEE Transactions on Acoustics, Speech, and Signal Processing*, **33**(5), pp. 1213-1230, October 1985.

B. Helme, Jr. and C. L. Nikias, "Improved Spectrum Performance via a Data Adaptive Weighted Burg Technique," *IEEE Transactions on Acoustics, Speech, and Signal Processing*, **33**(4), pp. 903-910, August 1985.

C. L. Nikias, A. P. Chrysafis, and A. N. Venetsanopoulos, "The LU Decomposition Theorem and Its Implications to the Realization of Multidimensional Digital Filters," *IEEE Transactions on Acoustics, Speech, and Signal Processing*, **33**(3), pp. 694-711, June 1985.

C. L. Nikias, "A General Realization Scheme of Periodically Time-Varying Digital Filters," *IEEE Transactions on Circuits and Systems*, **32**(2), pp. 204-207, February 1985.

C. L. Nikias and M. R. Raghuveer, "Discussion on Higher-Order Autospectra by Maximum Entropy Method," *Geophysics*, **50**(1), pp. 165-166, January 1985.

C. L. Nikias, "Fast Block Data Processing via a New IIR Digital Filter Structure," *IEEE Transactions on Acoustics, Speech, and Signal Processing*, **32**(4), pp. 770-779, August 1984.

C. L. Nikias and P. D. Scott, "Frequency Errors of the Energy-Weighted Algorithm in Processing Sinusoidal Signals: The Analytic Formula," *IEEE Transactions on Acoustics, Speech, and Signal Processing*, **31**(4), pp. 1045-1048, August 1983.

C. L. Nikias and P. D. Scott, "Covariance Least-Squares Algorithm for Spectral Estimation of Processes of Short Data Length," *IEEE Transactions on Geoscience and Remote Sensing*, **21**(2), pp. 180-190, April 1983.

P. D. Scott and C. L. Nikias, "Energy-Weighted Linear Predictive Spectral Estimation: A New Method Combining Robustness and High-Resolution," *IEEE Transactions on Acoustics, Speech, and Signal Processing*, **30**(2), pp. 287-293, April 1982.

P. D. Scott and C. L. Nikias, "Forward Covariance Least-Squares Algorithm: A New Method in AR Spectral Estimation," *Electronics Letters*, **17**(3), pp. 111-112, February 1981.

C. L. Nikias, "Error-Free Coefficient Realization of the Recursive Part via Input-Partitioned Filter Structure," *Electronics Letters*, **16**(6), pp. 236-237, March 1980.

W. F. Fincham and C. L. Nikias, "Optimally Sensitive Controller for Digital Systems," *Electronics Letters*, **15**(7), pp. 537-538, August 1979.

C. L. Nikias and W. F. Fincham, "Compact Polynomial Forms of Sensitivity Criteria," *Electronics Letters*, **15**(1), pp. 23-24, January 1979.

#### **D. Refereed Papers Appearing in Conference Proceedings**

M. Rupi, P. Tsakalides, C. L. Nikias and E. Del Re, "Robust Constant Modulus Arrays Based on Fractional Lower-Order Statistics," *Proceedings of ICASSP 1999*, Phoenix, AZ, March 1999.

P. Tsakalides, F. Trinci and C. L. Nikias, "Radar CFAR Thresholding in Heavy-Tailed Clutter Environments," *Proceedings of the Thirty-Second Annual Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, CA, November 1-4, 1998.

M. Rupi, P. Tsakalides, E. Del Re and C. L. Nikias, "A Robust Spatial Filtering Method for DOA Estimation of Coherent Sources in Impulsive Interference," *Proceedings of 10<sup>th</sup> Tyrrhenian Workshop on Digital Communications*, Ischia, Italy, September 15-18, 1998.

P. Tsakalides and C. L. Nikias, "A New Model for non-Rayleigh Clutter: Space-Time Adaptive Processing in Stable Impulsive Interferences," *Proceedings of ICASSP 1997*, Munich, Germany, April 21-24, 1997.

P. Reveliotis, P. Tsakalides and C. L. Nikias, "Scalar Quantization of Alpha-Stable Distributed Random Variables," *31<sup>st</sup> Conference on Information Sciences and Systems*, Baltimore, MD, March 19-21, 1997.

P. Tsakalides and C. L. Nikias, "Space-Time Adaptive Processing in Stable Impulsive Interference," *Proceedings of the Thirtieth Annual Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, CA, November 3-6, 1996.

P. Tsakalides and C. L. Nikias, "Joint Location and Doppler Estimation with Fractional Lower-Order Statistics," *Proceedings of IEEE Military Communications Conference (MILCOM 1996)*, McLean, VA, October 29-31, 1996.

P. Tsakalides and C. L. Nikias, "Joint Target Angle and Doppler Estimation with Fractional Lower-Order Statistics for Airborne Radar," *8<sup>th</sup> IEEE Signal Processing Workshop on Statistical Signal and Array Processing*, Corfu, Greece, June 24-26, 1996.

R. Raspanti, P. Tsakalides, C. L. Nikias and E. Del Re, "Cramer-Rao Bounds for Target Angle and Doppler Estimation for Airborne Radar in Cauchy Interference," *8<sup>th</sup> IEEE Signal Processing Workshop on Statistical Signal and Array Processing*, Corfu, Greece, June 24-26, 1996

P. Tsakalides and C. L. Nikias, "Robust Adaptive Beamforming in Alpha-Stable Noise Environments," *Proceedings of ICASSP 1996*, Atlanta, GA, May 7-10, 1996.

P. Tsakalides and C. L. Nikias, "Mine Detection with the Cauchy Beamforming Signal Processing Approach," *SPIE Symposium on Aerospace/Defense Sensing Controls*, Orlando, FL, April 8-12, 1996.

P. Tsakalides, R. Raspanti and C. L. Nikias, "Joint Target Angle and Doppler Estimation in Interference Modeled as a Stable Process," *30<sup>th</sup> Conference on Information Sciences and Systems*, Princeton, NJ, March 20-22, 1996.

X. Ma and C. L. Nikias, "Robust Time Delay Estimation using Lower-Order Statistics," *ICASSP-96*, Atlanta, GA, 1996.

G. A. Tsihrintzis and C. L. Nikias, "SubGaussian Random Processes: Definitions, Key Results, and Applications in Signal Detection," submitted to the *1996 Conference on Information Sciences and Systems*, Princeton University, Princeton, NJ, March 20-22, 1996.

G. A. Tsihrintzis and C. L. Nikias, "STAP Detection with Sub-Gaussian Distributions and Fractional, Lower-Order Statistics for Airborne Radar," *1996 Adaptive Sensor Array Processing Workshop*, MIT Lincoln Lab, Lexington, MA, March 13-15, 1996.

P. Tsakalides and C. L. Nikias, "Robust Adaptive Beamforming in Alpha-Stable Noise Environments," *Proceedings of the ICASSP-96*, Atlanta, GA, 1996.

S. Heidari and C. L. Nikias, "Performance Analysis of a New Near-far Resistance Linear Multiuser Detector in Asynchronous Channel," *Proceedings of the IEEE ICASSP*, Atlanta, GA, 1996.

R. H. Lambert and C. L. Nikias, "Polynomial Matrix Whitening and Application to the Multichannel Blind Deconvolution Problem," *MILCOM '95*, San Diego, CA, November 1995.

G. A. Tsihrintzis and C. L. Nikias, "Robust Change-Point Detection and Segmentation in Data Streams," *MILCOM '95*, San Diego, CA, November 1995.

P. Tsakalides and C. L. Nikias, "Wideband Array Signal Processing with Alpha-Stable Distributions," *MILCOM '95*, San Diego, CA, November 1995.

M. Gurelli and C. L. Nikias, "Blind Identification of Co-Channel Systems in the Presence of Input Signals with Different Baud Rates," *Proceedings of the IEEE Military Communications Conference, MILCOM'95*, pp. 102-106, San Diego, CA, Nov. 5-8, 1995.

M. Gurelli and C. L. Nikias, "Blind Equalization Based on Characteristic Function Analysis," *Processings of the IASTED International Conference on Signal and Image Processing SIP-95*, pp. 343-346, Las Vegas, NV., Nov. 20-23, 1995.

P. Tsakalides and C. L. Nikias, "Broadband Beamforming with Alpha-Stable Distributions," *Proceedings of the Twenty-Ninth Asilomar Conference*, Pacific Grove, CA, November 1995.

G. A. Tsihrintzis, P. Tsakalides and C. L. Nikias, "Signal Detection in Severely Heavy-Tailed Radar Clutter," *Proceedings of the Twenty-Ninth Asilomar Conference*, Pacific Grove, CA, November 1995.

G. A. Tsihrintzis and C. L. Nikias, "Incoherent Receivers in Alpha-Stable Impulsive Noise," *MILCOM '95*, San Diego, CA, November 1995.

J. Shen and C. L. Nikias, "Signal Estimation and Detection in Arbitrary Impulsive Noise Environment," *MILCOM '95*, San Diego, CA, November 1995.

S. Heidari and C. L. Nikias, "A New Linear Co-Channel Interference Mitigation Algorithm," *MILCOM '95*, San Diego, CA, November 1995.

S. Heidari and C. L. Nikias, "A New Class of Linear Receivers in the Presence of Co-channel Interference," *Proceedings of the IASTED International Conference on Signal and Image Processing*, Las Vegas, NV, November 1995.

R. H. Lambert and C. L. Nikias, "A Sliding Cost Function Algorithm for Blind Equalization," submitted to *Proceedings of the 29th Annual Asilomar Conference of Signals, Systems and Computer*. Pacific Grove, CA, October 29 - November 1, 1995.

X. Ma and C. L. Nikias, "Robust Methods for Time Delay Estimation in the Presence of Impulsive Noise," *29th Annual Asilomar Conference on Signal, Systems, and Computers*, Pacific Grove, CA, October 29 - November 1, 1995.

X. Ma and C. L. Nikias, "Blind Channel Identification Using Lower-Order Statistics," *Proceedings of the SPIE Photonics East '95, Coding and Signal Processing for Information Storage*, Philadelphia, PA., Oct. 22-26, 1995.

X. Ma and C. L. Nikias, "Blind Identification in Non-Gaussian Impulsive Environments," to be presented at the *1995 IEEE International Symposium on Information Theory*, Whistler, B.C. Canada, September 17-22, 1995.

G. A. Tsihrintzis and C. L. Nikias, "Modeling, Parameter Estimation, and Signal Detection in Radar Clutter with Alpha-Stable Distributions," *Proceedings of the 1995 IEEE Workshop on Nonlinear Signal and Image Processing*, Neos Marmaras, Halkidiki, Greece, June 20-22, 1995.

D. C. Shin and C. L. Nikias, "Adaptive Interference Mitigation Based on Higher-Order Statistics," *Proceedings of the 26th International Conference on Digital Signal Processing*, Limassol, Cyprus, June 26-29, 1995.

C. L. Nikias, "Signal Processing with Alpha-Stable Distributions and Applications," *Proceedings of the 1995 IEEE Workshop on Nonlinear Signal and Image Processing*, Neos Marmaras, Halkidiki, Greece, June 20-22, 1995.

P. Tsakalides and C. L. Nikias, "Array Signal Processing in the Alpha-Stable Framework: Detection and Localization of Sources in Impulse Noise Environments," *Proceedings of the 1995 IEEE Workshop on Nonlinear Signal and Image Processing*, Neos Marmaras, Greece, June 20-22, 1995.

G. A. Tsihrintzis and C. L. Nikias, "Robust Signal Detection Based on Fractional Lower-Order Statistics," *Proceedings of the 1995 IEEE Workshop on Nonlinear Signal and Image Processing*, Neos Marmaras, Halkidiki, Greece, June 20-22, 1995.

J. Shen and C. L. Nikias, "Impulsive Noise Cancellation Using Lower-order Statistics," *Proceedings of the IE3/ATHOS Workshop '95*, Begur, Girona, Spain, June 12-14, 1995.

X. Ma and C. L. Nikias, "On Blind Channel Identification for Impulsive Signal Environments," *Proceedings of the 1995 International Conference on Acoustics, Speech and Signal Processing (ICASSP'95)*, Detroit, MI, May 8-12, 1995.

G. A. Tsihrintzis and C. L. Nikias, "Fast Estimation of the Parameters of the Alpha-Stable Impulsive Interference using Asymptotic Extreme Value Theory," *Proceedings of the 1995 International Conference on Acoustics, Speech and Signal Processing (ICASSP'95)*, Detroit, MI, May 8-12, 1995.

P. Tsakalides and C. L. Nikias, "Subspace-Based Direction Finding in Alpha-Stable Noise Environments," *Proceedings of the 1995 International Conference on Acoustics, Speech and Signal Processing (ICASSP'95)*, Detroit, MI, May 8-12, 1995.

G. A. Tsihrintzis and C. L. Nikias, "Robust Signal Processing with Alpha-Stable Distributions," *Conference on Information Sciences and Systems*, Baltimore, MD, March 22-24, 1995.

P. Tsakalides and C. L. Nikias, "Direction Finding with Fractional Lower-Order Statistics," *1995 Workshop on Adaptive Sensor Array Processing (ASAP)*, MIT, Lincoln Laboratory, Lexington, MA, March 1995.

G. A. Tsihrintzis and C. L. Nikias, "Robust Signal Detection and Pattern Classification Based on Fractional Lower-Order Statistics: Applications in Radar," *MD/DC Signal Processing Workshop*, March 24-25, 1995.

J. Shen and C. L. Nikias, "Estimation of Arbitrary Impulsive Interference in the Complex State Space Systems," *Proceedings of GLOBECOM '94*, pp. 227-231, San Francisco, CA, November 27 - December 1, 1994.

S. Heidari and C. L. Nikias, "Receivers with Improved Performance in the Presence of Co-Channel Interference Based on the Wavelet Transform," *Proceedings of the Twenty-eighth Annual Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, October 31 - November 2, 1994.

M. I. Gurelli and C. L. Nikias, "Blind Identification Algorithms for Co-Channel Systems Using Higher-Order Statistics," *Proceedings of the Twenty-eighth Annual Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, October 31 - November 2, 1994.

R. Lambert and C. L. Nikias, "Forward/Inverse Blind Equalization," *Proceedings of the Twenty-eighth Annual Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, October 31 - November 2, 1994.



M. Shao and C. L. Nikias, "Recent Advances in Signal Processing Based on Stable Distributions," invited paper *Proceedings of the IFAC Symposium on Identification and System Parameter Estimation*, Copenhagen, Denmark, October 1994.

M. I. Gurelli and C. L. Nikias, "Blind Identification of Co-Channel Systems," *Proceedings of the IEEE Military Communications Conference (MILCOM '94)*, Fort Monmouth, NJ, October 2-5, 1994.

R. Lambert and C. L. Nikias, "Optimal Equalization Cost Functions and Maximum Likelihood," *Proceedings of the IEEE Military Communications Conference (MILCOM '94)*, Fort Monmouth, NJ, October 2-5, 1994.

J. Shen and C. L. Nikias, "Arbitrary Impulsive Interference Cancellation in Discrete Time Systems," *Proceedings of the IEEE Military Communications Conference (MILCOM '94)*, Fort Monmouth, NJ, October 2-5, 1994.

P. Tsakalides and C. L. Nikias, "Maximum Likelihood Localization of Sources in Noise Modeled as a Cauchy Process," *Proceedings of the IEEE Military Communications Conference (MILCOM '94)*, Fort Monmouth, NJ, October 2-5, 1994.

G. A. Tsihrintzis and C. L. Nikias, "On the Detection of Impulsive Stochastic Transients over Background Noise," *Proceedings of the IEEE Military Communications Conference (MILCOM '94)*, pp. 37-41, Fort Monmouth, NJ, October 2-5, 1994.

G. A. Tsihrintzis and C. L. Nikias, "Signal Detection in Incompletely Characterized Impulsive Noise Modeled as a Stable Process," *Proceedings of the IEEE Military Communications Conference (MILCOM '94)*, pp. 271-275, Fort Monmouth, NJ, October 2-5, 1994.

S. Heidari and C. L. Nikias, "A New Method for the Design of High Performance Receivers in the Presence of Co-Channel Interference," *Proceedings of the IEEE-SP International Symposium on Time-Frequency and Time-Scale Analysis*, Philadelphia, PA, October 25-28, 1994.

S. Heidari, G. A. Tsihrintzis, C. L. Nikias, and E. Jonckheere, "Self-Similar Set Identification in the Time-Scale Domain," *Proceedings of the Conference on Mathematical Imaging: Wavelet Applications in Signal and Image Processing II of the 1994 SPIE International Symposium on Optical Applied Science and Engineering*, San Diego, CA, July 27-29, 1994.

D. C. Shin and C. L. Nikias, "Nonlinear Adaptive Narrowband-Interference Mitigation in Generalized Gaussian Noise Channels," *Proceedings of the Seventh Signal Processing Workshop on Statistical Signal and Array Processing (SSAP '94)*, Quebec City, Quebec, Canada, June 26-29, 1994.

Y. Chen and C. L. Nikias, "The Interference Suppression Property of the CRIMNO Algorithm," submitted to *Proceedings of the International Conference on Communications (ICC '94)*, New Orleans, LA, May 1-5, 1994.

Y. Chen and C. L. Nikias, "New Results with Fractionally-Spaced Blind Equalization Algorithms," *Proceedings of the International Conference on Communications (ICC '94)*, New Orleans, LA, May 1-5, 1994.

J. R. Fonollosa and C. L. Nikias, "A New Positive Time-Frequency Distribution," submitted to *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP '94)*, Adelaide, South Australia, Australia, April 19-24, 1994.

M. Shao and C. L. Nikias, "An ML/MMSE Estimation Approach to Blind Equalization," submitted to *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP '94)*, Adelaide, South Australia, Australia, April 19-24, 1994.

P. Tsakalides and C. L. Nikias, "Maximum Likelihood Localization of Sources in Noise Modeled as a Stable Process," *Proceedings of the Signal and Image Processing Institute 1994 Annual Research Review*, Los Angeles, CA, April 28, 1994.

P. Tsakalides and C. L. Nikias, "A New Robust Array Processing Method Based on the Cauchy Beamformer," *Proceedings of the Adaptive Sensor Array Processing Workshop (ASAP '94)*, MIT Lincoln Laboratory, Lexington, MA, March 15-17, 1994.

Y. Chen and C. L. Nikias, "Insights into Fractionally-Spaced Blind Equalizers," submitted to *Proceedings of the IEEE Signal Processing Workshop on Higher-Order Statistics*, 1994.

Y. Chen and C. L. Nikias, "On Blind System Identification From Its Output Autocorrelation," *Proceedings of the Twenty-Seventh Asilomar Conference on Signals, Systems, and Computers*, pp. 731-735, Pacific Grove, CA, November 1-3, 1993.

S. Heidari and C. L. Nikias, "Characterizing Chaotic Attractors Using Fourth-Order Off-Diagonal Cumulant Slices," *Proceedings of the Twenty-Seventh Asilomar Conference on Signals, Systems, and Computers*, pp. 466-470, Pacific Grove, CA, November 1-3, 1993.

M. Shao and C. L. Nikias, "Signal Detection in Impulsive Noise Based on Stable Distributions," *Proceedings of the Twenty-Seventh Asilomar Conference on Signals, Systems, and Computers*, pp. 218-222, Pacific Grove, CA, November 1-3, 1993.

J. Shen and C. L. Nikias, "Recursive Computation of a *Posteriori* Density Functions for Arbitrary I.I.D. State Noise and Its Application to Impulsive Interference Mitigation," *Proceedings of the Twenty-Seventh Asilomar Conference on Signals, Systems, and Computers*, pp. 228-232, Pacific Grove, CA, November 1-3, 1993.

D. Shin and C. L. Nikias, "Complex Ambiguity Function Based on Fourth-Order Statistics for Joint Estimation of Frequency- and Time-Delay of Arrival," *Proceedings of the Twenty-Seventh Asilomar Conference on Signals, Systems, and Computers*, pp. 461-465, Pacific Grove, CA, November 1-3, 1993.

D. Shin and C. L. Nikias, "Frequency-Delay of Arrival (FDOA) Estimation Using Fourth-Order Statistics in Spatially Correlated Gaussian Noises," *Proceedings of the Twenty-Seventh Asilomar Conference on Signals, Systems, and Computers*, pp. 1138-1142, Pacific Grove, CA, November 1-3, 1993.

P. Tsakalides and C. L. Nikias, "A New Criterion for Blind Deconvolution of Colored Input Signals," *Proceedings of the Twenty-Seventh Asilomar Conference on Signals, Systems, and Computers*, pp. 746-750, Pacific Grove, CA, November 1-3, 1993.

G. A. Tsihrintzis and C. L. Nikias, "Detection and Classification of Signals in Impulsive Noise Modeled as an Alpha-Stable Process," *Proceedings of the Twenty-Seventh Asilomar Conference on Signals, Systems, and Computers*, pp. 707-710, Pacific Grove, CA, November 1-3, 1993.

J. R. Fonollosa and C. L. Nikias, "Analysis of CPM Signals Using Higher-Order Statistics," *Proceedings of the IEEE Military Communications Conference (MILCOM '93)*, Boston, MA, October 11-14, 1993.

G. A. Tsihrintzis and C. L. Nikias, "Performance of Optimum and Suboptimum Receivers in Impulsive Noise Modeled as an Alpha-Stable Process," *Proceedings of the IEEE Military Communications Conference (MILCOM '93)*, Boston, MA, October 11-14, 1993.

J. R. Fonollosa and C. L. Nikias, "Analysis of QAM Signals Using Higher-Order Spectra-Based Time-Frequency Distributions," *Proceedings of the IEEE Signal Processing Workshop on Higher-Order Statistics*, pp. 255-259, South Lake Tahoe, CA, June 7-9, 1993.

M. Gaeta and C. L. Nikias, "A New Method for Multiple Source Detection and Identification from Array Data Using Cumulants and Its Application to Shock Waves Propagation," *Proceedings of the IEEE Signal Processing Workshop on Higher-Order Statistics*, pp. 235-239, South Lake Tahoe, CA, June 7-9, 1993.

- E. Sayrol, C. L. Nikias, and T. Gasull, "Image Restoration Using Higher-Order Statistics and the Radon Transform," *Proceedings of the IEEE Signal Processing Workshop on Higher-Order Statistics*, pp. 76-80, South Lake Tahoe, CA, June 7-9, 1993.
- Y. Chen and C. L. Nikias, "Blind Identifiability of a Band-Limited Nonminimum Phase System from Its Output Autocorrelation," *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. IV: 444-447, Minneapolis, MN, April 27-30, 1993.
- M. I. Gurelli and C. L. Nikias, "A New Eigenvector-Based Algorithm for Multichannel Blind Deconvolution of Input Colored Signals," *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. IV: 448-451, Minneapolis, MN, April 27-30, 1993.
- C. L. Nikias, S. Gao, and S. Heidari, "Some New Results on the Inverse Problem for Electrocardiography," *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. I: 71-74, Minneapolis, MN, April 27-30, 1993.
- D. C. Shin and C. L. Nikias, "Adaptive Noise Canceler for Narrowband/Wideband Interferences Using Higher-Order Statistics," *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. III: 364-367, Minneapolis, MN, April 27-30, 1993.
- A. Bessios and C. L. Nikias, "Multichannel Adaptive Blind Equalization with CRIMNO-MSE Technique," *Proceedings of the Military Communications Conference (MILCOM '92)*, San Diego, CA, October 1992.
- Y. Chen and C. L. Nikias, "Fractionally-Spaced Blind Equalization with CRIMNO Algorithm," *Proceedings of the Military Communications Conference (MILCOM '92)*, pp. 3.9.1-3.9.5, San Diego, CA, October 1992.
- Y. Chen and C. L. Nikias, "Two-Dimensional Memory Nonlinearities and Their Application to Blind Deconvolution Problems," *Proceedings of the Sixth Workshop on Statistical Signal and Array Processing*, pp. 210-212, Victoria, British Columbia, Canada, October 1992.
- J. R. Fonollosa and C. L. Nikias, "Characterization and Detection of QAM Signals Using Higher-Order Spectra-Based Time-Frequency Distributions," *Proceedings of the Twenty-Sixth Annual Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, October 1992.
- M. Shao and C. L. Nikias, "Detection and Adaptive Estimation of Stable Processes with Lower-Order Fractional Moments," *Proceedings of the Sixth Workshop on Statistical Signal and Array Processing*, pp. 94-97, Victoria, British Columbia, Canada, October 1992.

J. R. Fonollosa and C. L. Nikias, "Wigner Higher-Order Moment Spectra: A Review," *Proceedings of the SPIE Advanced Signal Processing Algorithms, Architectures, and Implementations III Conference*, San Diego, CA, July 1992.

A. Bessios and C. L. Nikias, "A Blind Equalization Method Using Second- and Fourth-Order Statistics in a Nonlinear Structure," *Proceedings of the Signal and Image Processing Institute Annual Research Review*, Marina del Rey, CA, April 1992.

J. R. Fonollosa and C. L. Nikias, "Non-Stationary Signal Analysis Using Higher-Order Moments Based Time-Frequency Distributions," *Proceedings of the Signal and Image Processing Annual Research Review*, Marina del Rey, CA, April 1992.

J. R. Fonollosa and C. L. Nikias, "Analysis of Transient Signals Using Higher-Order Time-Frequency Distributions," *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*, pp. 197-200, San Francisco, CA, March 23-26, 1992.

Y. Chen and C. L. Nikias, "Adaptive Blind Equalization," *Proceedings of the Moments and Signal Processing Conference*, PP. 2-107, Monterey, CA, March 1992.

A. Bessios and C. L. Nikias, "A New Blind Equalization Algorithm Using Higher-Order Statistics in a Decision Feedback Structure," *Proceedings of the Twenty-Fifth Annual Asilomar Conference on Signals and Computers*, Pacific Grove, CA, November 4-6, 1991.

Y. Chen, C. L. Nikias and J. G. Proakis, "CRIMNO: Criterion with Memory Nonlinearity for Blind Equalization," *Proceedings of the Twenty-Fifth Annual Asilomar Conference on Signals and Computers*, pp. 694-698, Pacific Grove, CA, November 4-6, 1991.

J. R. Fonollosa and C. L. Nikias, "Transient Signal Detection Using the Wigner Bispectrum," *Proceedings of the Twenty-Fifth Annual Asilomar Conference on Signals and Computers*, pp. 1087-1092, Pacific Grove, CA, November 4-6, 1991.

M. Peng, C. L. Nikias, and J. G. Proakis, "Adaptive Equalization for PAM and QAM Signals with Neural Networks," *Proceedings of the Twenty-Fifth Annual Asilomar Conference on Signals and Computers*, Pacific Grove, CA, November 4-6, 1991.

D. Hatzinakos and C. L. Nikias, "Polyspectra Techniques for Blind Equalization of Communication Channels," *Proceedings of the International Conference on Communications*, Boston, MA, June 1989.

D. Hatzinakos and C. L. Nikias, "Adaptive Filtering Based on Polyspectra," *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*, Glasgow, Scotland, May 23-26, 1989.

- A. Petropulu and C. L. Nikias, "Analytic Performance Evaluation of the Bicepstrum," *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*, Glasgow, Scotland, May 23-26, 1989.
- A. Petropulu and C. L. Nikias, "Signal Reconstruction from the Phase of the Bispectrum," *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*, Albuquerque, NM, April 3-6, 1989.
- D. H. Brooks and C. L. Nikias, "Further Results Utilizing MRE Principles in Inverse Electrocardiography," *Proceedings of the Fifteenth Northeast Bioengineering Conference*, Boston, MA, March 1989.
- D. H. Brooks, C. L. Nikias, and J. H. Siegel, "An Inverse Solution in Electrocardiography in the Frequency Domain," *Proceedings of the Tenth Annual Conference IEEE EMBS*, New Orleans, LA, November 1988.
- H. H. Chiang and C. L. Nikias, "Cumulant-Based Adaptive Time Delay Estimation," *Proceedings of the Asilomar Conference*, CA, pp. 15-19, October 1988.
- D. Hatzinakos and C. L. Nikias, "Cumulant Techniques for the Estimation and Cancellation of Intersymbol Interference," *Proceedings of the IEEE Fourth ASSP Spectrum Estimation and Modeling Workshop*, pp. 204-207, Minneapolis, MN, August 3-5, 1988.
- C. L. Nikias, D. H. Brooks, and J. H. Siegel, "Inverse ECG Model Based on Minimum Relative Entropy Reconstruction Principle," *Proceedings of the World Congress on Medical Physics and Biomedical Engineering*, San Antonio, TX, August 6-12, 1988 (Invited Talk).
- H. H. Chiang and C. L. Nikias, "Adaptive Filtering via Cumulants and LMS Algorithm," *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*, pp. 1479-1482, New York, NY, April 1988.
- C. L. Nikias and R. Pan, "Time Delay Estimation in Unknown Gaussian Spatially Correlated Noise," *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*, pp. 2638-2641, New York, NY, April 1988.
- R. Pan and C. L. Nikias, "Harmonic Decomposition Methods in Cumulants Domains," *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*, pp. 2356-2359, New York, NY, April 1988.
- C. Papadopoulos and C. L. Nikias, "Bispectrum Estimation of Transient Signals," *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*, pp. 2404-2407, New York, NY, April 1988.
- A. Petropulu, C. L. Nikias, and J. G. Proakis, "Cumulant Cepstrum of FM Signals and High-Resolution Time Delay Estimation," *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*, pp. 2642-2645, New York, NY, April 1988.

D. H. Brooks, C. L. Nikias, and J. H. Siegel, "A Frequency Domain Inverse Solution in Electrocardiography," *Proceedings of the Fourteenth Northeast Bioengineering Conference*, Durham, NH, March 1988.

D. H. Brooks, C. L. Nikias, and J. H. Siegel, "Time and Frequency Domain Inverse Solutions in Electrocardiography," *Proceedings of the IEEE EMBS Ninth Annual Conference*, p. 17, Boston, MA, November 1987.

S. Rubin, C. L. Nikias, J. H. Siegel, and M. Fabian, "Detection of Myocardial Ischemia: Comparisons of Spectrum and Time Domain Methods" *Proceedings of the IEEE EMBS Ninth Annual Conference*, p. 24, Boston, MA, November 1987.

J. H. Siegel, C. L. Nikias, M. Fabian, T. C. Vary, and K. C. Goh, "Advanced Ischemia Detection and Biochemistry Verification," *Proceedings of the IEEE EMBS Ninth Annual Conference*, pp. 1879-1880, Boston, MA, November 1987.

C. L. Nikias and R. Pan, "ARMA Modeling of Fourth-Order Cumulants and Phase Estimation," *Proceedings of the International Conference on Signal Processing*, Florence, Italy, September 1987.

Y. Lou, C. L. Nikias, and A. N. Venetsanopoulos, "Efficient Array Processing Structures for Adaptive Quadratic Digital Filters," *Proceedings of the IEEE International Symposium on Circuits and Systems*, pp. 547-550, Philadelphia, PA, May 1987.

C. L. Nikias, "Higher-Order Spectral Analysis in Signal Processing," *Proceedings of the Canadian Centennial Engineering Convention*, Montreal, Canada, May 1987 (Invited Talk).

C. L. Nikias, "Higher-Order Spectrum Estimation," *Proceedings of the IEEE ASSP Mini-Conference*, pp. 14-24, Boston, MA, May 1987 (Keynote Address).

Y. Lou, C. L. Nikias, and A. N. Venetsanopoulos, "VLSI Array Processing Structures of Quadratic Digital Filters with LMS Algorithms," *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 1394-1397, Dallas, TX, April 1987.

C. L. Nikias and H. H. Chiang, "Non-Causal Autoregressive Bispectrum Estimation and Deconvolution," *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 1557-1560, Dallas, TX, April 1987.

C. L. Nikias and R. Pan, "Nonminimum Phase System Identification via Cepstrum Modeling of Higher-Order Cumulants," *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 980-983, Dallas, TX, April 1987.

- T. Ning and C. L. Nikias, "Power Spectrum Estimation with Uncertainty in the Sample Location of Correlation Measurements," *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 661-664, Dallas, TX, April 1987.
- C. L. Nikias, D. H. Brooks, and J. H. Siegel, "Testing the Performance of Least-Squares Inverse Models for Electrocardiography," *Proceedings of the Thirteenth Northeast Bioengineering Conference*, Philadelphia, PA, March 1987.
- C. L. Nikias, J. H. Siegel, S. Rubin, and M. Fabian, "Advanced Statistical Signal Processing for the Detection of Acute Myocardial Ischemia," *Proceedings of the Thirteenth Northeast Bioengineering Conference*, Philadelphia, PA, March 1987.
- C. L. Nikias, J. H. Siegel, M. Fabian, T. C. Vary, T. Ning, and K. C. Goh, "Advanced Signal Processing Methodology for the Detection, Localization, and Quantification of Acute Myocardial Ischemia," *Proceedings of the Forty-Eighth Annual Meeting, The Society of University Surgeons*, p. 25, Columbus, OH, February 1987.
- M. Mashikian, R. Northrop, R. Bansal, and C. L. Nikias, "Detection, Localization, and Characterization of Partial Discharge Sites in Extruded Dielectric Cables," *Proceedings of the IEEE Conference on Electrical Insulation and Dielectric Phenomena*, Pittsburgh, PA, 1987.
- C. L. Nikias, "Parametric Trispectrum Estimation," *Proceedings of the IEEE Third ASSP Workshop on Spectrum Estimation and Modeling*, pp. 17-20, Boston, MA, November 1986.
- C. L. Nikias, J. H. Siegel, and T. Y. Shen, "Frequency Wavenumber Inverse Model for Electrocardiography," *Proceedings of the Eighth Annual Conference IEEE Engineering in Medicine and Biology*, pp. 307-310, Fort Worth, TX, November 1986.
- C. L. Nikias, H. H. Chiang, and A. N. Venetsanopoulos, "Parallel Architectures for Quadratic Filters," *Proceedings of the DSP Workshop (ASSP)*, pp. 8.7.1-8.7.2, Chatham, MA, October 1986.
- A. C. P. Loui, A. N. Venetsanopoulos, and C. L. Nikias, "Modular Implementation of Quadratic Digital Filters," *Proceedings of the Twenty-Ninth Midwest Symposium on Circuits and Systems*, Lincoln, NE, August 1986.
- C. L. Nikias and A. N. Venetsanopoulos, "Identification of Nonminimum Phase Communication Channels via Parametric Modeling of Third Moments," *Proceedings of the International Conference on Communications*, Toronto, Canada, June 1986.
- A. Polydoros and C. L. Nikias, "Advanced Detection of Unknown-Frequency Sinusoids in Noise," *Proceedings of the International Conference on Communications*, Toronto, Canada, June 1986.



H. H. Chiang, C. L. Nikias, and A. N. Venetsanopoulos, "Efficient Implementations of Digital Volterra Filters," *Proceedings of the International Symposium on Circuits and Systems*, pp. 857-860, San Jose, CA, May 1986.

A. Polydoros and C. L. Nikias, "Detection of Unknown-Frequency Sinusoids in Noise via Autoregressive Modeling," *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 2807-2810, Tokyo, Japan, April 1986.

C. L. Nikias, T. Ning, J. H. Siegel, and M. Fabian, "Myocardial Ischemia Studies from Epicardial Array ECG Signals, Part I: Detection of the Border-Zone in a Multichannel Spectrum Domain," *Proceedings of the Twelfth Northeast Bioengineering Conference*, pp. 281-844, New Haven, CT, March 1986.

C. L. Nikias and J. H. Siegel, "Knowledge-Based Classification of Epicardial Electric Activation from Array ECG Signals," *Proceedings of the Twelfth Northeast Bioengineering Conference*, pp. 198-200, New Haven, CT, March 1986.

C. L. Nikias, J. H. Siegel, and M. Fabian, "Myocardial Ischemia Studies from Epicardial Array ECG Signals, Part II: Detection and Quantification via Frequency-Wavenumber Spectrum Estimation," *Proceedings of the Twelfth Northeast Bioengineering Conference*, pp. 285-287, New Haven, CT, March 1986.

C. L. Nikias, A. N. Venetsanopoulos, and B. Paramasivaiah, "Mixed-Phase Wavelet Estimation via Autoregressive Bispectrum," *Proceedings of the International Geoscience and Remote Sensing Symposium*, pp. 66-71, Amherst, MA, October 1985.

C. L. Nikias, J. H. Siegel, M. R. Raghuveer, and M. Fabian, "Spectrum Estimation for the Analysis of Array ECG Signals," *Proceedings of the Seventh Annual International Conference IEEE Engineering in Medicine and Biology*, pp. 824-829, Chicago, IL, September 1985.

C. L. Nikias and A. N. Venetsanopoulos, "Geophysical Signal Processing via Multidimensional Decompositions," *Proceedings of the IASTED International Symposium Applied Signal Processing and Digital Filtering*, pp. 255-258, Paris, France, June 1985.

H. H. Chiang and C. L. Nikias, "Parallel Block Realization of 2-D IIR Digital Filters," *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*, pp. 1301-1303, Tampa, FL, March 1985.

C. L. Nikias, M. R. Raghuveer, J. H. Siegel, and M. Fabian, "Zero-Delay Wavenumber Spectrum Estimation for the Analysis of Array ECG Signals," *Proceedings of the Eleventh Northeast Bioengineering Conference*, pp. 120-123, Worcester, MA, March 1985.

C. L. NIKIAS and A. N. VENETSANOPOULOS, "Sufficient Condition for Extendibility and Two-Dimensional Power Spectrum Estimation," *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*, pp. 792-795, Tampa, FL, March 1985.

T. NING and C. L. NIKIAS, "The Optimum Approach to Multichannel Autoregressive Spectral Analysis," *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*, pp. 800-803, Tampa, FL, March 1985.

M. R. RAGHUVEER and C. L. NIKIAS, "Bispectrum Estimation of Short Length Data Records," *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*, pp. 1352-1355, Tampa, FL, March 1985.

A. P. CHRYSAFIS, C. L. NIKIAS, and A. N. VENETSANOPOULOS, "Implementation of Two-Dimensional Digital Filters by LU Decomposition of Their Transfer Function," *Proceedings of the International Conference on Digital Signal Processing*, Florence, Italy, September 1984.

C. L. NIKIAS and A. N. VENETSANOPOULOS, "A Sufficient Condition for the Extendibility of 2-D Autocorrelation Samples," *Proceedings of the Open Symposium on Data, Signal, and Image Processing*, U.R.S.I., Florence, Italy, September 1984.

C. L. NIKIAS, A. P. CHRYSAFIS, and A. N. VENETSANOPOULOS, "Design and Realization of Two-Dimensional FIR Digital Filters by LU Decomposition of Their Impulse Response," *Proceedings of the IEEE International Symposium on Circuits and Systems*, pp. 1034-1037, Montreal, Canada, May 1984.

B. HELME, JR. and C. L. NIKIAS, "High-Resolution Modified Burg Algorithm," *Proceedings of the International Electrical Electronic Conference and Exposition*, pp. 348-351, Toronto, Canada, September 1985; also in *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 13.1.1-13.1.4, San Diego, CA, March 1984.

C. L. NIKIAS, "A New Realization Scheme of Periodically Time-Varying Digital Filters," *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 22.1.1-22.1.4, San Diego, CA, March 1984.

M. R. RAGHUVEER and C. L. NIKIAS, "A Parametric Approach to Bispectrum Estimation," *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 38.1.1-38.1.4, San Diego, CA, March 1984.

A. N. VENETSANOPOULOS and C. L. NIKIAS, "Realization of Two-Dimensional Digital Filters by LU Decomposition of Their Transfer Function," *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 20.4.1-20.4.4, San Diego, CA, March 1984.

C. L. Nikias and M. R. Raghuveer, "Multi-Dimensional Spectral Estimation via Parametric Models," *Proceedings of the IEEE ASSP Spectrum Estimation Workshop II*, pp. 231-218, Tampa, FL, November 1983.

C. L. Nikias, "Fast Block Data Processing via a New IIR Filter Structure," *Proceedings of the International Electrical Electronic Conference and Exposition*, pp. 526-529, Toronto, Canada, September 1983.

C. L. Nikias and M. R. Raghuveer, "A New Class of High Resolution and Robust Multidimensional Spectral Estimation Algorithms," *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 859-862, Boston, MA, April 1983.

P. D. Scott and C. L. Nikias, "High-Resolution Frequency Estimation via a Weighted Forward and Backward Autoregressive Modeling," *Proceedings of the IEEE Conference on Acoustics, Speech, and Signal Processing*, pp. 1072-1075, Boston, MA, April 1983.

P. D. Scott, C. L. Nikias, and J. H. Siegel, "An Algorithmic Prearrhythmic Cardiac Spectrum Estimation," *Proceedings of the Thirty-Fifth Annual Conference on Engineering in Medicine and Biology*, 34.4, Philadelphia, PA, September 1982.

C. L. Nikias, P. D. Scott, and J. H. Siegel, "A New Robust 2-D Spectral Estimation Method and Its Application in Cardiac Data Analysis," *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 729-732, Paris, France, May 1982.

C. L. Nikias, P. D. Scott, and J. H. Siegel, "The Prearrhythmic State in Hypothermic and Ischemic Myocardium: Stable Retrograde and Multiple Wavefronts Detected by New 2-D Spectral Estimation Technique," *Proceedings of the Tenth Annual Northeast Bioengineering Conference*, pp. 341-346, Hanover, NH, March 1982.

P. D. Scott and C. L. Nikias, "Realtime Assessment of Biological Wave Phenomena: New Algorithms for Traveling Wave Detection which Work with Short, Noisy, and Inhomogeneous Data," *Proceedings of the Tenth Annual Northeast Bioengineering Conference*, pp. 127-130, Hanover, NH, March 1982.

C. L. Nikias and P. D. Scott, "Covariance Least-Squares Spectral Estimation," *Proceedings of the International Conference on Digital Signal Processing*, Florence, Italy, September 1981.

P. D. Scott and C. L. Nikias, "New Robust Spectral Estimation Algorithms Based on Minimum Covariance Recursion Error," *Proceedings of the IEEE First ASSP Workshop on Spectral Estimation*, pp. 6.7.1-6.7.10, Hamilton, Ontario, Canada, August 1981.

C. L. Nikias and P. D. Scott, "Improved Spectral Resolution by Energy Weighted Prediction Method," *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 496-499, Atlanta, GA, March 1981.

C. L. Nikias and A. D. Fam, "Precise Pole Realization by Unobservable Digital Filters," *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 77-80, Denver, CO, April 1980.

J. H. Siegel, M. Fabian, R. Smith, B. Coleman, C. L. Nikias, and P. D. Scott, "The Beneficial Effect of Potassium Cardioplegia in Modifying Hypothermic Oxidative Metabolism and in Preventing Rewarming Ventricular Arrhythmias," *Proceedings of the Joint Surgical Conference of the International Cardiovascular Society*, San Francisco, CA, September 1979.

C. L. Nikias and W. F. Fincham, "The Van der Pol Oscillator as an Element in a Hierarchically Structured Respiratory Controller," *Proceedings of the Second International Conference on Information Sciences and Systems*, pp. 265-272, Patras, Greece, July 1979.

## **E. Patents**

"Method and Apparatus for Situationally Adaptive Processing in Echo-Location Systems Operating in Non-Gaussian Environments," by V. Z. Marmarelis, C. L. Nikias, and D. C. Shin, **U.S. Patent 6,044,336**, March 28, 2000.

"Method for Automatic Focusing of Radar and Sonar Imaging Systems Using High-Order Measurements," by C. L. Nikias, V. Z. Marmarelis, D. C. Shin, **U.S. Patent 6,037,892**, March 14, 2000.

"Process and Apparatus for Improved Interference Suppression in Echo-location and Imaging Systems," by V. Z. Marmarelis, C. L. Nikias and D. Sheby, **U. S. Patent 5,790,475**, August 4, 1998.

"Method and Apparatus for Enhanced Resolution of Range Estimates in Echo Location for Detection and Imaging Systems," by V.Z. Marmarelis, C.L. Nikias and D. Sheby, **U.S. Patent 5,760,732**, June 2, 1998.

"An Adaptive Blind Channel Equalizer System," by C. L. Nikias, J. G. Proakis, and Y. Chen, **U.S. Patent 5,282,225**, January 25, 1994.

"Advanced Signal Processing Methodologies for the Detection, Localization, and Quantification of Acute Myocardial Ischemia," by C. L. Nikias and J. H. Siegel, **U.S. Patent 974,162**, November 27, 1990.

Non-Invasive Method and Apparatus for Describing the Electrical Activity of the Surface of an Interior Organ,” by C. L. Nikias, D. H. Brooks, J. H. Siegel, and M. Fabian, **U.S. Patent 4,961,428**, October 9, 1990.

“Method and Instrumentation for the Detection, Localization, and Characterization of Partial Discharges and Faults in Electric Power Cables,” by M. Mashikian, R. B. Northrop, R. Bansal, and C. L. Nikias, **U.S. Patent 4887041**, December 12, 1989.