

CURRICULUM VITAE

(Abbreviated)

Stephen D. Casey

PROFESSOR OF MATHEMATICS AND CHAIR
DEPARTMENT OF MATHEMATICS AND STATISTICS
AFFILIATE PROFESSOR OF COMPUTER SCIENCE
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EDUCATION

Institution	Degree	Date Awarded
Drew University	B. A.	1979
University of Maryland	Ph.D.	1988

Ph.D. Thesis: *The boundary of the universal Teichmüller space and the Bers space of Schwarzians*

Advisor: David Hamilton

SELECTED AWARDS AND HONORS

Guest Editor-in-Chief of *Sampling Theory in Signal and Image Processing* (June 2015).

Chair of SAMPTA 2015, the 11th biennial international conference on Sampling Theory and Applications (May 2015).

Keynote Lecture, GlobalSIP (IEEE Global Conference on Signal and Information Processing), Georgia Tech University – “Adaptive Signal Processing” (December 2014).

Founding Member of the Center for Behavioral Neuroscience, American University (October 2012).

Ideas Incubator Award, American University Center for Teaching, Research and Learning – “Computational Science” (May 2012).

Founding Member of the Editorial Board, *Journal of Signal and Image Processing* (December 2010).

Teaching with Technology Award, American University Center for Teaching, Research and Learning – “Visualizing Functions of a Complex Variable (*Complex Made Simple*)” (August 2010).

Invited Lecture presented to Washington-Baltimore Section of the Society for Industrial and Applied Mathematics – “How to Teach Some Old Dogs Some New Tricks: Deconvolution and Sampling on Non-Commensurate Lattices via Complex Interpolation Theory” (October 2003).

Founding Member of the Editorial Board, *Sampling Theory in Signal and Image Processing* (June 2002).

American University Professor of the Year – Student Award (AY 1999-2000).

Finalist for the Mathematical Association of America MD-VA-DC Sectional Teaching Award (AY 1998-1999).

American University Faculty Award for Outstanding Teaching (AY 1997-1998).

EDITORIAL BOARDS

Guest Editor-in-Chief of *Sampling Theory in Signal and Image Processing* (2015 – 2017).

Associate Editor, *Sampling Theory in Signal and Image Processing*.

Associate Editor, *Journal of Signal and Image Processing*.

SELECTED GRANTS

U.S. Army Research Office Scientific Services program, administered by Battelle (Subcontract Number 418205, Contract Number W911NF-11-D-0001, TCN 17007) – “Network Tomography: Internet Data Analysis and Security” July 26th, 2017 – July 25th, 2018 – \$15,000.

Stephen D. Casey, PI, Michael Robinson, Kevin Duke – “Sampling Theory and Applications (SAMPTA 2015),” (BAA W911NF-12-R-0012-02) Army Research Office – April 15th, 2015 – December 30th, 2015 – \$18,500.

Stephen D. Casey, PI, Michael Robinson, Kevin Duke – “Sampling Theory and Applications (SAMPTA 2015),” (BAA-AFOSR-2014-0001) Air Force Office of Scientific Research – April 5th, 2015 – November 30th, 2015 – \$16,235.

U.S. Army Research Office Scientific Services program, administered by Battelle (Subcontract Number 418205, Contract Number W911NF-11-D-0001) – “Adaptive frame theory for wideband signals” – April 10th, 2014 – March 16th, 2015 – \$25,000.

Air Force Office of Scientific Research Grant Number FA9550-12-1-0430 – “New techniques in time-frequency analysis: adaptive band, ultra-wide band and multi-rate signal processing” – September 1st, 2012 – August 31st, 2015 – \$145,537.

U.S. Army Research Office Scientific Services program, administered by Battelle (TCN 06150, Contract Number W911NF-07-D-0001) – “Analysis of parallel windowed projection sampling architecture” – July 31st, 2009 – July 30th, 2011 – \$38,000.

U.S. Army Research Office Scientific Services program, administered by Battelle (TCN 06150, Contract Number W911NF-07-D-0001) – “Adaptive sampling for variable bandwidths” – August 15th, 2008 – January 1st, 2009 – \$18,000.

U.S. Army Research Office Scientific Services program, administered by Battelle (TCN 06150, Contract Number W911NF-07-D-0001) – “The projection method and generalized Shannon sampling for sampling and reconstruction of wide-band signals” – July 31st, 2007 – January 1st, 2008 – \$18,000.

U.S. Army Research Office Scientific Services program, administered by Battelle (TCN 06150, Contract DAAD19-02-D-0001) – “Signal sampling and reconstruction via multi-rate and multi-band techniques” – June 26st, 2006 – September 30st, 2006 – \$15,600.

U.S. Army Research Office Scientific Services program, administered by Battelle (TCN 05-166, Contract DAAD19-02-D-0001) – “Signal analysis and reconstruction via basis expansion” – June 24st, 2005 – September 30st, 2005 – \$15,500.

U. S. Army Research Office Grant Number DAAD19-02-1-0210 – “Signal reconstruction via new techniques in harmonic and complex analysis” – July 1st, 2002 – June 30th, 2005 – \$87,993.

U. S. Army Research Office Grant Number DAAD19-99-1-0240 – “Number theoretic methods in harmonic analysis: theory and application” – June 1st, 1999 – May 31th, 2002 – \$102,138.

U.S. Army Research Office Scientific Services program, administered by Battelle (TCN 98-115, Contract DAAD04-96-C-0086) – “Number theoretic methods in applied harmonic analysis” – June 1st, 1998 – August 31st, 1998 – \$12,000.

Office of Naval Research Grant Number N00014-97-1-0566 – “Number theoretic methods in parameter estimation: theory and procedure” – April 1st, 1997 – May 31st, 1998 – \$47,193.

Air Force Office of Scientific Research Grant Number F49620-94-1-0196 – “Multichannel deconvolution with applications to signal and image processing” – June 1st, 1994 – August 31st, 1995 – \$59,208.

American University Senate Research Award – “Systems of convolution equations, deconvolution, and applications to signal and image processing” – May 1st, 1992 – April 30th, 1993 – \$6,000.

U. S. Army Research Office Grant Number DAAL03-91-G-0195 – “Reconstruction of remotely sensed acoustic signals” – June 1st – November 30th, 1991 – \$25,997.

National Science Foundation Grant DMS-8700627, Professor D. Hamilton, University of Maryland, Principal Investigator – “Teichmüller theory and quasiconformal mappings” – Summers 1987-88 – \$8,000.

National Science Foundation Grant DMS-8501509, Professor D. Hamilton, University of Maryland, Principal Investigator – “Teichmüller theory and quasiconformal mappings” – Summer 1986 – \$4,000.

PATENTS

“Windowing methods and systems for use in time-frequency analysis – Sampling architectures for ultra-wideband systems” U.S. Patent Application 15/274450, Continuation-in-part of 13/464843. – September 2016.

(with B. Sadler) “Windowing methods and systems for use in time-frequency analysis,” Patent Number: 9,454,511 B2, Date of Patent: September 27, 2016, Publication Number: US 2013/0028297 A1, Application Number 13/464843.

“Windowing systems for time-frequency analysis,” Provisional patent, Docket Number 8802-99490 – May 2011.

(with B. Sadler) “Adaptive and ultra-wideband sampling via projection,” Provisional patent, Docket Number 8802-99489 – May 2011.

SELECTED PUBLICATIONS

Patents

(with B. Sadler) United States Patent, “Windowing methods and systems for use in time-frequency analysis,” Patent Number: 9,454,511 B2, Date of Patent: September 27, 2016, Publication Number: US 2013/0028297 A1, Application Number 13/464843.

Refereed Journal Articles

(With B. Sadler) “Pi, the primes, periodicities and probability” – *The American Mathematical Monthly*, Vol. 120, No. 7, pp. 594–608 (2013).

“Windowing systems for time-frequency analysis” – *Sampling Theory in Signal and Image Processing*, Vol. 11, No. 2-3, pp. 221-251 (2013).

“Reduction theorems for monotonicity” – *The Journal of Mathematical Analysis*, Vol. 3, No. 3, pp. 11–19 (2012).

“Ultra-wideband sampling theory via the projection method” – *Proceedings of the 2007 International Conference on Sampling Theory and Applications*, pp. 33–38 (2009).

“Cauchy’s equation, continuity and Hamel bases” – *Proceedings of the 2007 International Conference on Sampling Theory and Applications*, pp. 27–32 (2009).

“Two problems from industry and their solutions via Harmonic and Complex Analysis,” *The Journal of Applied Functional Analysis*, Vol. 2, No. 4, pp. 427 – 460 (2007).

(with R. Holzinger) “On positive derivatives and monotonicity,” *Missouri Journal of Mathematical Sciences*, Vol. 17, No. 3, pp. 161 – 173 (2005).

(With B. Sadler) “Sinusoidal frequency estimation via sparse zero crossings,” *Jour. Franklin Inst.*, No. 337, pp. 131–145 (2000).

(with B. Sadler) “On pulse interval analysis with outliers and missing observations,” *IEEE Transactions on Signal Processing*, Vol. 46, No. 11, pp. 2990–3003 (1998).

“Modulation and sampling techniques for multichannel deconvolution,” *Journal of Inverse and Ill-Posed Problems*, Vol. 7, No. 7, pp. 401–441 (1997).

“Using dimension theory to analyze and classify the generation of fractal sets,” *Computers and Graphics*, Vol. 20, No. 5, pp. 731–749 (1996).

(with B. Sadler) “Modifications of the Euclidean algorithm for isolating periodicities from a sparse set of noisy measurements,” *IEEE Transactions on Signal Processing*, Vol. 44, No. 8, pp. 2260–2272 (1996).

“The interaction of theory and procedure in fractal geometry,” *Computer Graphics*, pp. 120–136 (1995).

(With D. Walnut) “Systems of convolution equations, deconvolution, Shannon sampling and the wavelet and Gabor transforms,” *SIAM Review*, Vol. 36, No. 4, pp. 537–577 (1994).

(With N. Reingold) “Self-similar fractal sets: theory and procedure,” *IEEE Computer Graphics and Applications*, Vol. 14, No. 3, pp. 73–82 (1994).

“The inclusion of classical families in the closure of the universal Teichmüller space,” *Michigan Mathematical Journal*, Vol. 39, No. 2, pp. 189–199 (1992).

“Systems of convolution equations, deconvolution and Gabor and wavelet signal analysis,” *Proceedings of the European Frequency and Time Forum*, pp. 262–274 (1991).

“Analysis of fractal and Pareto-Levy sets: theory and application,” *Proceedings of the European Frequency and Time Forum*, pp. 205–211 (1990).

“Formulating fractals,” *Computer Language*, Vol. 4, No. 4, pp. 28–40, cover (1987).

Book Articles

“Harmonic Analysis in Non-Euclidean Spaces: Theory and Application,” Chapter 6 in *Recent Applications of Harmonic Analysis to Function Spaces, Differential Equations, and Data Science (Novel Methods in Harmonic Analysis, Volume 2)*, Springer-Birkhäuser book in the Applied and Numerical Harmonic Analysis Series – pp. 565–601 (2017).

(With J. Christensen) “Sampling in Euclidean and non-Euclidean domains: a unified approach,” Chapter 9 in *Sampling Theory, a Renaissance*, Springer-Birkhäuser book in the Applied and Numerical Harmonic Analysis Series, based on the special session on “Sampling and Geometry” 2013 International Conference on Sampling Theory and Applications (SAMPTA '13) – pp. 331–359 (2015).

“Adaptive signal processing,” Chapter 11 in *Excursions in Harmonic Analysis, Volume 4*, Springer-Birkhäuser book in the Applied and Numerical Harmonic Analysis Series, based on the talk “Adaptive Signal Processing” given in the February Fourier Talks, The Norbert Wiener Center, University of Maryland – February 2013 – pp. 261–290 (2015).

(With D. Walnut) “Residue and sampling techniques in deconvolution,” Chapter 9 in *Modern Sampling Theory: Mathematics and Applications*, Birkhauser Research Monographs, ed. by P. Ferreira and J. Benedetto, pp. 193–217 (2001).

“The starry night – iterates of $\tan(z)$ ” – *The Pattern Book*, edited by Dr. Clifford A. Pickover, World Scientific Publishers, pp. 126–128 (1996).

“From asymmetry to symmetry – iterates of $\exp(z)$ and $\exp(z^2)$ ” – *The Pattern Book*, edited by Dr. Clifford A. Pickover, World Scientific Publishers, pp. 129–131 (1996).

“The ‘computer bug’ as artist – opus 3” – *The Pattern Book*, edited by Dr. Clifford A. Pickover, World Scientific Publishers, pp. 138–139 (1996).

(with N. Reingold) – “A variation on a curve of Mandelbrot” – *The Pattern Book*, edited by Dr. Clifford A. Pickover, World Scientific Publishers, pp. 132–134 (1996).

(with N. Reingold) – “An asymmetric Sierpinski carpet” – *The Pattern Book*, edited by Dr. Clifford A. Pickover, World Scientific Publishers, pp. 135–137 (1996).

Refereed¹ Conference Proceedings

“Poisson Summation and Selberg Trace,” *2017 International Conference on Sampling Theory and Applications (SAMP TA 2017)*, *IEEE Xplore*, pp. 96-100 (2017) (refereed).

(With H. Cohl) “Sampling architectures for ultra-wideband signals,” *2017 International Conference on Sampling Theory and Applications (SAMP TA 2017)*, *IEEE Xplore*, pp. 246-250 (2017) (refereed).

(With J. Christensen and G. Olafsson) “Bergman spaces, amenability and the Kunze-Stein phenomenon,” *2015 International Conference on Sampling Theory and Applications (SAMP TA 2015)*, *IEEE Xplore*, pp. 68-72 (2015) (refereed).

(With H. Cohl) “UWB signal processing: projection, B-splines, and modified Gegenbauer bases,” *2015 International Conference on Sampling Theory and Applications (SAMP TA 2015)*, *IEEE Xplore*, pp. 11-15 (2015) (refereed).

“Signal adaptive frame theory” – *Proceedings of the 10th International Conference on Sampling Theory and Applications*, European Association for Signal Processing, pp. 313–316 (2013) (refereed).

(With B. Sadler) “Adaptive and ultra-wideband sampling via projection” – *2011 International Conference on Sampling Theory and Applications (Samp TA '11)*, 4 pp. (2011) (electronic publication) (refereed).

“Windowing systems for time-frequency analysis” – *2011 International Conference on Sampling Theory and Applications (Samp TA '11)*, 4 pp. (2011) (electronic publication) (refereed).

(With B. Sadler) “Adaptive and ultra-wideband sampling theory via the signal segmentation and projection” – *2009 International Conference on Sampling Theory and Applications (Samp TA '09)*, 4 pp. (2009) (electronic publication) (refereed).

“Two problems from industry and their solutions via harmonic and complex analysis” – *2005 International Conference on Sampling Theory and Applications (Samp TA '05)*, pp. 21–25 (2005) (refereed).

“Deconvolution and sampling on non-commensurate lattices,” *2003 International Workshop on Sampling Theory and Applications (Samp TA '03)*, pp. 25–29 (2003) (refereed).

(With B. Sadler) “New directions in sampling and multi-rate A-D conversion via number theoretic methods,” *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2000)*, Vol. 3, pp. 1417–1420 (2000) (refereed).

¹Except where noted.

“Sampling and reconstruction on unions of non-commensurate sampling lattices via complex interpolation theory,” *1999 International Workshop on Sampling Theory and Applications (SampTA '99)*, pp. 48–51 (1999) (refereed).

(With B. Sadler) “Sampling on unions of non-commensurate lattices via complex interpolation theory,” *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP '99)*, Vol. 3, pp. 1641–1644 (1999) (refereed).

“Sampling issues in Fourier analytic vs. number theoretic methods in parameter estimation,” *31st Annual Asilomar Conference on Signals, Systems and Computers*, Vol. 1, pp. 453–457 (1998) (invited).

“Sampling techniques for multichannel deconvolution,” *1997 International Workshop on Sampling Theory and Applications (SampTA '97)*, pp. 279–284 (1997) (refereed).

(With C. Berenstein and D. Walnut) “Exact multichannel deconvolution on radial domains,” *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP '97)*, Vol. 3, pp. 1865–1868 (1997) (refereed).

(With D. Lake and B. Sadler) “Detecting regularity in minefields using collinearity and a modified Euclidean algorithm,” *Proc. SPIE*, Vol. 3079, pp. 234–241 (1997) (refereed).

(With B. Sadler) “Number theoretic methods in parameter estimation,” *Proceedings of IEEE Workshop on Statistical Signal and Array Processing*, pp. 406–409 (1996) (refereed).

(With B. Sadler) “Frequency estimation via sparse zero crossings,” *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP '96)*, Vol. 5, pp. 2990–2993 (1996) (refereed).

(With B. Sadler) “PRI analysis from sparse data via a modified Euclidean algorithm,” *29th Annual Asilomar Conference on Signals, Systems and Computers*, Vol. 1, pp. 161–168 (1995) (invited).

(With B. Sadler) “A modified Euclidean algorithm for isolating periodicities from noisy data,” *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP '95)*, Vol. 3, pp. 1764–1767 (1995) (refereed).

(With J. Pellegrino and B. Sadler) “A residue number system for wide band acousto-optic spectrum analysis,” *Proc. IEEE, USS*, pp. 285–290 (1985) (refereed).

SELECTED PRESENTATIONS

2017 STEAM Fair, American University, “Thing 1 and Thing 2: (Geometry and Information)” – October 2015 (15 minute presentation).

2017 International Conference on Sampling Theory and Applications (SAMP TA '17), “Poisson Summation and Selberg Trace” – July 2017 (25 minute presentation).

(With H. Cohl) 2017 International Conference on Sampling Theory and Applications (SAMP TA '17), “Sampling Architectures for Ultra-Wideband Signals” – July 2017 (25 minute presentation).

American University Seminar in Chemistry and Biochemistry – “Harmonic analysis in Euclidean and non-Euclidean geometry: theory and application – (*from cell phones to the internet to neuroscience*)” – January 2017 (1 hour presentation).

American University Mathematics and Statistics Colloquium – “Signal analysis and tomography in Euclidean and non-Euclidean domains: from cosmology to the internet to neuroscience” – January 2017 (1 hour presentation).

Harmonic Analysis Seminar, The Norbert Wiener Center, University of Maryland – “Pi, the primes, periodicities and probability” – October 2016 (1 hour presentation).

Howard University Mathematics Colloquium – “Signal analysis and tomography in Euclidean and non-Euclidean domains: from cosmology to the internet to neuroscience” – September 2016 (1 hour presentation).

Applied and Computational Mathematics Division (ACMD) Seminar Series at the National Institute of Standards and Technology (NIST) – “Sampling in Euclidean and non-Euclidean domains: a unified approach” – September 2016 (1 hour presentation).

Strobl 2016: Modern Time-Frequency Analysis – “Sampling in Euclidean and non-Euclidean domains: a unified approach” – June 2016 (25 minute presentation).

New Mexico State University Mathematics Colloquium – “Sampling in Euclidean and non-Euclidean domains: a unified approach” – March 2016 (1 hour presentation).

(With H. Cohl) 2015 International Conference on Sampling Theory and Applications (SAMP TA '15), “UWB signal processing: projection, B-splines, and modified Gegenbauer bases” – May 2015 (25 minute presentation).

(With J. Christensen and G. Olafsson) 2015 International Conference on Sampling Theory and Applications (SAMP TA '15), “Bergman spaces, amenability and the Kunze-Stein phenomenon” – May 2015 (25 minute presentation).

(With K. Duke) American University Mathematics and Statistics Colloquium – “The analysis of periodic point processes” – February 2015 (1 hour presentation).

Keynote Lecture, GlobalSIP (IEEE Global Conference on Signal and Information Processing), Georgia Tech University – “Adaptive signal processing” – December 2014 (1 hour presentation).

Colgate University Mathematics Colloquium – “Pi, the primes, periodicities and probability (Computing values of the Riemann Zeta Function)” – November 2014 (1 hour presentation).

Morgan State Mathematics Colloquium – “Pi, the primes, periodicities and probability (Computing values of the Riemann Zeta Function)” – November 2014 (1 hour presentation).

Eastern Regional Meeting of the American Mathematics Society – Dalhousie University, Halifax, Nova Scotia – “Sampling and geometry” – October 2014 (20 minute presentation).

(With F. Benadon) Center for Behavioral Neuroscience, American University, Faculty Retreat – “Wavelet analysis and musical (micro)rhythm” – June 2014 (20 minute presentation).

Applied and Computational Mathematics Division (ACMD) Seminar Series at the National Institute of Standards and Technology (NIST) – “The analysis of periodic point processes” – June 2014 (1 hour presentation).

5th International Conference on Computational Harmonic Analysis (ICCHA V) – Vanderbilt University – “The analysis of periodic point processes (the structure of randomness)” – May 2014 (1/2 hour presentation).

Southwest Regional Meeting of the American Mathematics Society – University of New Mexico – “The analysis of periodic point processes (the structure of randomness)” – April 2014 (20 minute presentation).

Howard University Mathematics Colloquium – “Pi, the primes, periodicities and probability” – October 2013 (1 hour presentation).

American University Computer Science Colloquium – “Fractals for the classroom: recursive geometry” – October 2013 (1 hour presentation).

Hood College Mathematics Colloquium. – “Pi, the primes, periodicities and probability” – October 2013 (1 hour presentation).

American University Mathematics and Statistics Colloquium – “Fractals for the classroom” – September 2013 (1 hour presentation).

American University Freshman Welcome Week – “Recursive fractal geometry: the geometry of nature” – September 2013 (1.5 hour presentation and workshop).

2013 International Conference on Sampling Theory and Applications (SAMP TA '13), “Signal adaptive frame theory” – July 2013 (20 minute presentation).

Ohio University Mathematics Colloquium – “Adaptive signal processing” – April 2013 (1 hour presentation).

February Fourier Talks, The Norbert Wiener Center, University of Maryland – “Adaptive signal processing” – February 2013 (30 minute presentation).

American University Mathematics and Statistics Colloquium – “Visualizing complex analysis (complex made simple)” – February 2013 (1 hour presentation).

Center for Behavioral Neuroscience, American University, Faculty Retreat – “Harmonic analysis: the mathematics of images and sounds” – January 2013 (20 minute presentation).

The University of North Carolina at Wilmington Mathematics Colloquium – “Sampling and signal processing for adaptive frequency band (AFB) and ultra-wide-band (UWB) signals” – November 2012 (1 hour presentation).

Virginia Polytechnic Institute and State University Mathematics Colloquium – “Cauchy’s equation, continuity, and Hamel bases” – October 2012 (1 hour presentation).

American University Computer Science Colloquium – “On computing values of the Riemann Zeta Function,” September 2012 (1 hour presentation).

Air Force Office of Scientific Research SS&N Program Review – “Sampling and signal processing for adaptive frequency band (AFB) and ultra-wide band (UWB) signals” – June 2012 (30 minute presentation).

Applied and Computational Mathematics Division (ACMD) Seminar Series at the National Institute of Standards and Technology (NIST) – “Signal adaptive frame theory” – May 2012 (1 hour presentation).

Analysis Seminar, Mathematics Department, George Washington University, – “Deconvolution and sampling on non-commensurate lattices via complex interpolation theory” – April 2012 (1 hour presentation).

American University Mathematics and Statistics Colloquium – “Adaptive signal processing” – February 2012 (1 hour presentation).

Harmonic Analysis Seminar, The Norbert Wiener Center, University of Maryland – “Adaptive signal processing” – November 2011 (1 hour presentation).

Masonic Federal Lodge Number 1, Liberal Arts Series – Geometry – “Pi, phi and e – Archimedes, Euler and beyond” – November 2011 (1 hour presentation).

Virginia Polytechnic Institute and State University Mathematics Colloquium. – “Pi, the primes, periodicities and probability” – November 2011 (1 hour presentation).

2011 International Conference on Sampling Theory and Applications (SAMP TA ’11) – “Windowing systems for time-frequency analysis” – Nanyang Technical University, Singapore – May 2011 (20 minute presentation).

2011 International Conference on Sampling Theory and Applications (SAMP TA ’11) – “Adaptive and ultra-wideband sampling via projection” – Nanyang Technical University, Singapore – May 2011 (20 minute presentation)

Catholic University Functional Analysis Seminar – “Deconvolution and sampling on non-commensurate lattices via complex interpolation theory : theory and application,” – December 2010 (90 minute presentation).

American University Mathematics and Statistics Colloquium. – “Cauchy’s equation, continuity, measure and Hamel bases (a harmonic analyst looks at continuity),” November 2010 (1 hour presentation).

Harmonic Analysis Seminar, The Norbert Wiener Center, University of Maryland – “Cauchy’s equation, continuity and Hamel bases” – October 2010 (1 hour presentation).

Harmonic Analysis Seminar, The Norbert Wiener Center, University of Maryland – “Adaptive and ultra-wideband sampling” – October 2010 (1 hour presentation).

Teaching with Technology Award, American University Center for Teaching, Research and Learning – “Visualizing functions of a complex variable (*complex made simple*)” – August 2010 (1 hour presentation).

Regional Meeting of the American Mathematical Society, Florida Atlantic University – special session on “Inverse Problems and Signal Processing” – “Deconvolution and sampling on non-commensurate lattices via complex interpolation theory” – November 2009 (20 minute presentation).

2009 International Conference on Sampling Theory and Applications (SAMP TA '09) – “Adaptive and ultra-wideband sampling theory via the signal segmentation and projection” – CIRM, Luminey, France – May 2009 (poster presentation).

Maryland Institute College of Art – “An incursion into recursion – designing your own fractal set” – April 2009 (2 hour presentation).

Queens University Faculty Colloquium “Deconvolution and sampling on non-commensurate lattices via complex interpolation theory” – Queens University, Ontario, CA – October 2008 (1 hour presentation).

Maryland Institute College of Art – “Fractal geometry through recursion” – April 2008 (2 hour presentation).

Maryland Institute College of Art – “Recursive geometry: the geometry of nature” – November 2007 (2 hour presentation).

2007 International Conference on Sampling Theory and Applications (SAMP TA '07) – “Ultra-wideband sampling theory via the projection method” – Aristotle University of Thessaloniki, Greece – June 2007 (30 minute presentation).

2007 International Conference on Sampling Theory and Applications (SAMP TA '07) – “Cauchy’s equation, continuity and Hamel bases” – Aristotle University of Thessaloniki, Greece – June 2007 (30 minute presentation).

Catholic University Functional Analysis Seminar – “Cauchy’s equation, continuity and Hamel bases: a harmonic analyst looks at continuity,” – April 2007 (90 minute presentation).

United States Naval Academy Pure Mathematics Seminar – “Cauchy’s equation, continuity and Hamel bases: a harmonic analyst looks at continuity,” – January 2007 (60 minute presentation).

Presented by R. Patel – 2005 International Conference on Sampling Theory and Applications (SAMP TA '05) – “Two problems from industry and their solutions via harmonic and complex analysis” – Samsun, Turkey – July 2005 (30 minute presentation).

American Mathematical Society, Western Regional Meeting at the University of New Mexico – “Two problems from industry and their solutions via harmonic and complex analysis” – October 2005 (30 minute presentation).

Washington-Baltimore Section of the Society for Industrial and Applied Mathematics – “How to teach some old dogs some new tricks: deconvolution and sampling on non-commensurate lattices via complex interpolation theory” - A DVD of this lecture was created by the section and submitted to the SIAM national society for release in their lecture series – October 2003 (90 minute presentation).

United States Naval Academy Mathematics Department Colloquium – “How to teach some old dogs some new tricks: deconvolution and sampling on non-commensurate lattices via complex interpolation theory” - October 2003 (1 hour presentation).

2003 International Conference on Sampling Theory and Applications (SAMP TA '03) – “Sampling theory via complex interpolation theory” - Strobl, Salzburg, Austria – May, 2003 (30 minute presentation).

National Institute of Science and Technology – “Complex mappings from an evolutionary viewpoint (A new way to see some classical mathematics),” – April 2002 (1 hour presentation).

James Madison University Mathematics Department Colloquium – “Pi, the primes, periodicities and probability,” – March 2002 (1 hour presentation).

New Mexico Analysis Seminar – “Sampling on non-commensurate lattices via complex interpolation theory,” – February 2002 (30 minute presentation).

Morgan State University Mathematics Department Colloquium – “Pi, the primes, periodicities and probability,” – September 2001 (1 hour presentation).

American University Math/Stat Department Colloquium – “Complex mappings from an evolutionary viewpoint (a new way to see some classical mathematics),” – April 2001 (1 hour presentation).

University of Maryland, Baltimore County Mathematics Department – Colloquium, “Pi, the primes, periodicities and probability,” – March 2001 (1 hour presentation).

University of Maryland Statistics Seminar – “Pi, the primes, periodicities and probability,” – October 2000 (1 hour presentation).

U.S. Naval Academy Mathematics Department Colloquium – “Complex mappings from an evolutionary viewpoint (a new way to see some classical mathematics),” – September 2000 (1 hour presentation).

International Conference on Scientific Computing and Mathematical Modeling (IMACS), University of Wisconsin, Milwaukee – “Deconvolution, Bezout equations and wavelets – May 2000 (30 minute presentation).

Joint Meeting of the American Mathematical Society and the Mathematical Association of America, Washington, DC – special session on “Recent Advances in Harmonic and Complex Analysis” (co-chair with C. A. Berenstein, B. Q. Li, D. F. Walnut, C. C. Yang) – “Analytic Bezout equations, sampling and the strongly coprime condition” – January 2000 (20 minute presentation).

(with D. Bell) – Meeting of the Mathematical Association of America, Loyola University – “Visualizing complex mappings from an evolutionary point of view” – November 1999 (2 hour workshop).

American University Student-Faculty Colloquium – “Deconvolution and sampling via number theoretic chicanery,” – October 1999 (1 hour presentation).

1999 International Conference on Sampling Theory and Applications (SAMP TA '99) – “Sampling and reconstruction on non-commensurate lattices via complex interpolation theory,” Session on “Direct Sampling Methods and Image Reconstruction” – Loen, Norway – August 1999 (30 minute presentation).

1999 International Conference on Sampling Theory and Applications (SAMP TA '99) – “How natural is the strongly coprime condition?” Session on “Direct Sampling Methods and Image Reconstruction” – Loen, Norway – August 1999 (30 minute presentation).

(with R. Torrey and K. McCarron) American University Technology Workshop “Fractals for the classroom: visualizing convergence” – March 1999 (30 minute presentation).

Catholic University Functional Analysis Seminar – “Sampling and reconstruction non-commensurate lattices via complex interpolation theory” – March 1999 (90 minute presentation).

United States Naval Academy Mathematics Colloquium – “Pi, the primes, periodicities and probability” – October 1998 (1 hour presentation).

Georgetown University Student-Faculty Colloquium – “An algorithm for isolating periodicities from a sparse noisy set (the Queen of mathematics dirties her hands !!)” – March 1998 (1 hour presentation).

Catholic University Functional Analysis Seminar – “Deconvolution and sampling on non-commensurate lattices via complex interpolation theory” – January 1998 (90 minute presentation).

Joint Meeting of the American Mathematical Society and the Mathematical Association of America, Baltimore, MD – special session on “Inverse Problems and Applications” – “Deconvolution and sampling on non-commensurate lattices via complex interpolation theory” – January 1998 (20 minute presentation).

Thirty-First Annual Asilomar Conference on Signals, Systems and Computers, Pacific Grove, California – “Sampling issues in Fourier analytic vs. number theoretic methods in parameter estimation” – November 1997 (poster presentation).

1997 International Conference on Sampling Theory and Applications (SAMP TA '97) – “Sampling techniques for multichannel deconvolution” Session on “Wavelets, Frames and Sampling (session chair) – Universidade de Aveiro, Aveiro, Portugal – June 1997 (30 minute presentation).

National Institute of Science and Technology Colloquium – “Exact multichannel deconvolution” – May 1997 (1 hour presentation).

Regional Meeting of the American Mathematical Society, University of Maryland – special session on “Harmonic Analysis and Applications” (session co-chair with D. Walnut) – “Isolating periodicities from sparse noisy data” – April 1997 (20 minute presentation).

Catholic University Functional Analysis Seminar – “Monotonicity with/without mean values” – March 1997 (90 minute presentation).

Catholic University Functional Analysis Seminar – “Exact multichannel deconvolution” – February 1997 (90 minute presentation).

American University Student-Faculty Colloquium – “Number theoretic methods for parameter estimation (the Queen of mathematics dirties her hands !!)” – October 1996 (1 hour presentation).

George Mason Faculty Colloquium – “Number theoretic methods in parameter estimation” – March 1996 (1 hour presentation).

Institute for Systems Research, Signal Processing Seminar – “New methods for parameter estimation” – February 1996 (1 hour presentation).

Twenty-Ninth Annual Asilomar Conference on Signals, Systems and Computers, Pacific Grove, California (with B. Sadler) – “PRI analysis from sparse data via a modified Euclidean algorithm” – October 1995 (20 minute presentation).

Conference on Complex Interpolation Theory and Applications, George Mason University – “Multichannel deconvolution and Wiener filtering” – October 1995 (45 minute presentation).

Meeting of the American Mathematical Society, University of Central Florida – special session on “Wavelets in Sampling Theory and Signal Processing” – “An algorithm for isolating periodicities from noisy data” – March 1995 (20 minute presentation).

1995 Winter School of Computer Graphics, University of West Bohemia, Plsen, Czech Republic – “The interaction of theory and procedure in fractal geometry” – February 1995 (20 minute presentation).

Army Research Laboratory, Optical and Digital Signal Processing Colloquium – “Exact deconvolution from a system of convolution equations with applications to signal and image processing” – January 1995 (1 hour presentation).

Maryland Undergraduate Mathematics Enhancement Program, Visual Thinking in Fractal Geometry, – “An efficient algorithm for producing self-similar fractal sets” – July 1994 (1 hour presentation).

Joint Meeting of the American Mathematical Society and the Mathematical Association of America, Cincinnati, OH – special session on “Advances in Function Theoretic Methods” – “Bezout equations and sampling” – January 1994 (20 minute presentation).

Joint Meeting of the American Mathematical Society, the Canadian Mathematical Society and the Mathematical Association of America, Vancouver, British Columbia – co-chair of the session on “Operator Theory and Harmonic Analysis” – “Deconvolution” – August 1993 (15 minute presentation).

Air Force Office of Scientific Research – “Systems of convolution equations, deconvolution, and Shannon sampling” – June 1993 (1 hour presentation).

Army Research Laboratory, Signal Processing Seminar – “Systems of convolution equations, deconvolution, Shannon sampling and wavelets” – June 1993 (1 hour presentation).

Meeting of the American Mathematical Society, Howard University – special session on “Wavelets in Sampling Theory and Signal Processing” – “Deconvolution, splines, Shannon sampling and wavelets” – April 1993 (20 minute presentation).

United States Naval Academy, Applied Mathematics Seminar – “Deconvolution, splines, Shannon sampling and wavelets” – March 1993 (1 hour presentation).

National Institute of Health, Signal and Image Processing Seminar – “Exact deconvolution from a systems of convolution equations, sampling, wavelets and applications” – June 1992 (1 hour presentation).

George Mason Mathematics Club End of Year Meeting – “Self-similar fractals: theory and procedure” – May 1992 (1 hour presentation).

Rutgers-Newark Faculty Colloquium – “Systems of convolution equations, deconvolution and wavelets” – April 1992 (1 hour presentation).

Joint Meeting of the American Mathematical Society and the Mathematical Association of America, Baltimore, MD – special session on “Interaction of Harmonic Analysis, Signal Processing, and Computational Mathematics” – “Deconvolution, Shannon sampling and Gabor and wavelet transforms” – January 1992 (20 minute presentation).

George Mason Faculty Colloquium – “Systems of convolution equations, deconvolution and Shannon sampling” – October 1991 (1 hour presentation).

American University Student-Faculty Colloquium – “Systems of convolution equations and deconvolution” – September 1991 (1 hour presentation).

U. S. Naval Academy, Applied Mathematics Seminar – “Systems of convolution equations and deconvolution” – January 1991 (1 hour presentation).

Harry Diamond Laboratory, Signal Processing Seminar – “Deconvolution in image and signal processing” – November 1990 (1 hour presentation).

Institute of Defense Analyses – “Theory, procedure and applications of fractal geometry” – February 1989 (1 hour presentation).

Barrett Memorial Lectures, University of Tennessee – “The inclusion of classical families in the closure of the universal Teichmüller space” – April 1988 (30 minute presentation).

Meeting of the American Mathematical Society, University of Maryland – special session on “Several Complex Variables and Applications” – “A sufficient condition for non-isolation in the space of Schwarzians” – April 1988 (20 minute presentation).

Student-Faculty Colloquium, Goucher College – “Fractal geometry: theory and procedure” – March 1988 (1 hour presentation).

Student-Faculty Colloquium, American University – “Fractal geometry: theory and procedure” – March 1988 (1 hour presentation).

Student-Faculty Colloquium, Franklin and Marshall College – “Fractal geometry: theory and procedure” – February 1988 (1 hour presentation).

Faculty Colloquium, Boston College – “Quasiconformal mappings, univalent functions and the universal Teichmüller space” – February 1988 (1 hour presentation).

Student-Faculty Colloquium, Canisius College – “Fractal geometry: theory and procedure” – February 1988 (1 hour presentation).

Student-Faculty Colloquium, Washington College – “Fractal geometry: theory and procedure” – February 1988 (1 hour presentation).

Complex Analysis Seminar, University of Maryland – “Quasiconformal mappings, univalent functions and the universal Teichmüller space” – October 1987 (1 hour presentation).