

Bernard A. Mair, Ph.D.

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Administrative Positions

University of Florida

Associate Provost for Undergraduate Affairs (Office of the Provost); April '09 – present

Responsibilities include

- Provide campus-wide leadership for, and oversight of, undergraduate academic programs, academic advising, and student academic support services; and serve as an advocate for undergraduate education in support of the university's mission.
- Promote excellence in teaching and advising, and lead efforts to provide a challenging and engaging learning environment for undergraduate students.
- Initiate innovative undergraduate academic programs that build on the strengths and successes of the university
- Coordinate, evaluate and enhance the university's degree-tracking system.
- Provost Office liaison to the Faculty Senate and Board of Governors (State of Florida) in all matters pertaining to the undergraduate and professional programs
- Regular presentations to the Faculty Senate on changes to the undergraduate and professional degree programs; academic calendar; formation, closures, and mergers of departments and schools that require senate approval
- Lead on-going outcomes-based assessment of the university's undergraduate academic programs, including Academic Learning Compacts
- Provide administrative oversight of the following units: Center for Pre-collegiate Education and Training, Center for Undergraduate Research, HHMI Science for Life, Honors, Innovation Academy, Office of Academic Support, Reserve Officers Training Program, Ronald E. McNair Post-Baccalaureate Scholars Program, UF Teach, Upward Bound; and new student programs (in coordination with the Division of Student Affairs)
- Manage budget of approximately \$3.25 M
- Handle referrals from President's office regarding complaints from students and parents

- Provide administrative leadership of campus-wide academic advising and the Undergraduate Advising Council
- Supervise the development of all undergraduate and professional degree programs starting with the formation process in the colleges to approval by the Board of Trustees (UF) and the Board of Governors (State level)
- Chair of the University Curriculum Committee, General Education Committee, Council of Associate Deans, Kynes Scholarship Committee
- Serve as Academic Affairs Liaison on: Academic Policy Council, Academic Assessment Committee, Committee on Collections at the Harn Museum of Art
- Provost Office representative on Commencement Committee, Diversity Council, Preview Steering Committee, Academic Integrity Task Force
- Regular interaction with deans' offices, departmental leadership, faculty, and academic advisors in all sixteen colleges and the University Athletic Association

Initiatives include:

- Revised academic programming for McNair Scholars Program, 2009
- Completion of Task Force Report on Undergraduate Education, 2009
- Established Center for Undergraduate Research, June 2010
- Established Academic Assessment Committee, March 2010
- Reform of institutional assessment practices, started 2010
- Established Academic Integrity Task Force, 2010
- Streamlining of review process for curriculum modifications and related committees, ongoing
- Establishment of institutional assessment office, and practices, 2011-12
- Assessment of General Education program, started September 2011
- Re-organized academic support units, 2010
- Organized and presented in academic leadership meeting between University of Florida and University of Texas – Austin
- Negotiate cooperative agreements with foreign universities, 2011
- Development of policies and implementation of new approval process for Certificate programs – involved working with the Office of the University Registrar, the Graduate School, and deans' offices of all sixteen colleges
- Development and oversight of new interdisciplinary Humanities course intended for all UF students
- Development of the Innovation Academy – a new enrollment model and curriculum
- Revision of General Education program, including development of assessment methods

Director, Ronald E. McNair Program, April '09 – present

Responsibilities include

- Supervise the operation of the McNair Scholars Program
- Serve as Principal Investigator for the McNair grant

- Responsible for budget and program development

Acting Associate Dean, College of Liberal Arts & Sciences; Feb. '08 – March '09

Responsibilities Include:

- Coordination of the mathematical, natural and physical sciences departments: Astronomy, Biology, Chemistry, Geological Sciences, Mathematics, Physics, and Statistics – aid the dean in operation (budgets, faculty, program reviews) of these departments
- Supervision of the college IT office (budget, personnel, projects)
- Liaison to the College Curriculum Committee

Associate Chair & Graduate Coordinator, Department of Mathematics; May '96 – May '98

Responsibilities Include:

- Oversight of approximately 80 graduate students: admissions, student progress to degree, initial chair of supervisory committees for all graduate students, annual evaluation of student progress,
- Oversight of academic aspects of graduate program: course and examinations scheduling, faculty assignment, development of new program initiatives, coordination with other graduate programs
- Chair of the Graduate Committee
- Act as Department Chair in absence of Chair

North Carolina State University

Head, Department of Mathematics; July – Dec. '02, July '03 – June '04

Responsible for all aspects of running a large (over 50 faculty), multi-faceted academic department

Education

- Ph. D. McGill University (1983); Mathematics
Dissertation: Fine and Parabolic Limits, 1982
Area: Harmonic Analysis, Potential theory
- M. Sc. University of the West Indies (1978); Mathematics
Thesis: A Riesz Integral Representation Theorem, 1977
Area: Functional Analysis, Measure Theory
- B. Sc. University of the West Indies (1973)
Major: Mathematics (First Class Honors)

Professional Positions

University of Florida, Department of Mathematics

Professor (1996 – 2003, 2004 – present); Associate Professor (1991 – 1996)
Assistant Professor (1989 – 1991)

North Carolina State University, Department of Mathematics

Professor (2002, 2003 – 2004)

Emory University, Department of Radiology

Visiting Associate Professor (1999 – 2000)

Dartmouth College, Department of Mathematics

Visiting Associate Professor (1995 – 1996)

Texas Tech University, Department of Mathematics

Assistant Professor (1986 – 1989)

Pennsylvania State University, Department of Mathematics

Assistant Professor, Mont Alto Campus (1984 – 1986)

University of the West Indies, Department of Mathematics

Lecturer (1981 – 1984)

Awards

University of Florida Teaching Award (1995)

Distinguished Member Award, National Society of Collegiate Scholars, 2011

Committees

Department

- Steering Committee 2007 – 2008, 1993-1995, 1991-92
- Post-Doc Search Committee, 2007 – 2008
- Graduate Mentor, 2004 - 2008, 1999-2001
- Group Proposals Committee, 2004 – 2008
- Numerical Analysis PhD Exam Committee, 2007 – 2008, 1995 - 2002
- Co-director, Center for Applied Mathematics, 1998 – 2002
- Tenure & Promotion Committee, 1998-2000
- SPEP Committee, 1999-2000

- Faculty Mentor, 1997-2001
- Associate Chair & Graduate Coordinator, 1996-98
- Graduate Committee (Chair), 1996-98
- Graduate Committee, 1989-93, 2001-02
- Graduate Selection Committee, 1993-94, 2004-07
- Graduate Student Recruitment Committee, 1993-94
- Faculty Search Committee, 1990-1995, 1997-98
- TIP Committee, 1998
- Robert Long Prize Committee, 1995

College-Wide

- IT Action Plan Task Force, 2008 – 2009
- ITAC-AT Committee, 2008 – 2009
- ITAC-DI Committee, 2008 – 2009
- ITAC-NI Committee, 2008 – 2009
- ITAC-HPC Committee, 2008 – 2009
- UF Exchange Advisory Committee, 2008 – 2009
- CLAS Curriculum Committee, 2007- 2008, 1990-91
- Mentor, Minority Mentor Program, 2008-2009, 1993-94
- Graduation Marshall, Spring 1990, 2007
- PET Center Committee, 2002-2003
- Advisory Committee on CLAS High Performance Computing, 2002-2003
- Member of UF team from CLAS and UFBI that visited Lawrence Livermore National Labs to discuss possible research collaborations, Nov. 1998.
- CLAS Research Awards Committee, CLAS Bonus Pay Committee
- Faculty Senate 1995-97
- UF Engineering Fair (Judge), 1995
- Selection Committee for Minority Scholars Program, 1994
- Mentor, McNair Program, 1994
- Volunteer, Florida SECME Olympiad, March 1993

University-Wide

- Chair, Anti-Hazing Task Force, 2012
- Member, Commencement Committee, 2009 –
- Member, Diversity Council, 2009 –
- Chair, University Curriculum Committee, 2009 –
- Chair, General Education Committee, 2009 –
- Chair, Council of Associate Deans, 2009 –
- Chair, Kynes Scholarship Committee, 2009 –
- Member, Title IX Committee, 2009 –
- Member, Committee on Collections, 2009 –
- Member, Search Committee for Vice President for Student Affairs, 2012

- Member, Search Committee for Director of Student Financial Affairs, 2011 – 12
- Member, Academic Integrity Task Force, 2010 – 12
- Chair, University Calendar Task Force, 2010
- Chair, Ombuds Search Committee, 2009 – 10
- Member, H1N1 Committee, 2009
- Guest Speaker, Graduate Minority Programs Fall Visitation Program, Nov. 1996
- Faculty Advisor for CARIBSA (Caribbean Students Association), 1992 – 94

State-Wide

- Member, ALC Workgroup, Aug 2011 – present
- Member, SUS Undergraduate Deans Group, 2009 – present
- Member, Florida DoE General Education Steering Committee
- Co-Chair, Florida DoE Mathematics Faculty Committee

Contracts and Grants

Ronald E. McNair Post-Baccalaureate Achievement Program, (PI: B. A. Mair), US Dept. of Education, 10/01/2012 – 09/30/2017, \$1.1M

Ronald E. McNair Post-Baccalaureate Achievement Program, (PI: B. A. Mair), US Dept. of Education, 10/01/2009 – 09/30/2012, \$450,000

SCREMS: *Developing Computational Mathematics at the University of Florida*, (PI: J. Gopalakrishnan, co-PI's: T. Davis, W. Hager, B. Mair, S. Moskow), NSF, 8/1/06 - 7/31/09, \$81,000

Gated Cardiac ECT Reconstruction with Motion Analysis, (PI: D. Gilland, co-PI: B. Mair), NIH, 7/1/2004 - 6/30/2007, \$730,000

Precursor Radar Processing for Foliage Penetrations, (PI: T. Olson, co-PI: B. Mair), AFOSR, 05/11/01 – 03/31/03, \$169,676

Medical Imaging: Algorithms and Data, University of Florida, CLAS, 10/1/99, \$12,746

Practical Training in Emission Tomography, (PI: B. A. Mair), NSF, 8/1/99 - 7/31/00, \$97,260

SCREMS: *Mathematical Methods in Imaging*, NSF, (PI: B. Mair, Co-PI: Y. Chen), 7/1/98 - 6/31/99, \$34,000

Numerical Algorithms for Positron Emission Tomography, (PI: B. A. Mair), UF-CLAS, 5/1/98 - 4/31/99, \$19,925

PDE Methods in Automatic Segmentation and Edge Extraction, (PI: B. A. Mair), Lockheed Martin Integrated Systems, 1/1/98 - 8/31/98, \$9,534

Real-Time Targeting, ONR Subcontract from Dartmouth College, (PI: B. A. Mair), 07/01/97 -- 11/30/97, \$19,814

Positron Emission Tomography: Modeling, Analysis and Algorithms, (PI: B.A. Mair; Co-PI: M. Rao), NSF, 8/1/96 -- 7/31/99, \$120,000

Wavelets and Applications, NSF, (PI: B. A. Mair), 8/31/95 - 5/31/94, \$40,400

Broaden Knowledge of Stable Mathematical Formulations, (PI: B. A. Mair), DSR, University of Florida, 6/2/93 - 6/1/94, \$3,850

Inversion and Observability of Parabolic Initial Value Problems, (PI: B. A. Mair), NSF, 8/1/90 - 7/31/91, \$11,025

Inverse Diffusion Problems, (PI: B. A. Mair), DSR, University of Florida, 9/29/89 - 9/28/90, \$6,725

Inversion and Observability of Parabolic Initial Boundary Value Problems, (B. A. Mair, D. Gilliam, C. Martin), NSF, 8/1/89 - 7/31/90, \$30,460

A Mathematical Analysis of Thermography, (B. A. Mair, D. Gilliam), Texas Advanced Research Project, 6/1/88 -- 7/31/90, \$73,602

Conference Organization

2008 SIAM Imaging Science Conference, San Diego, CA, July 7-9, 2008

- Organizing Committee
- Mini-symposium Organizer and Session Chair: *Nanoscale Photonic Imaging*
- Session Chair: *IC*

First SIAM Conference on Imaging Science, Boston, March 4-6, 2002

- Program Committee
- Minisymposium Organizer and Session Chair: *Tomographic Reconstruction in Medical Transmission and Emission Imaging*

SPIE's 45th Annual Meeting, International Symposium on Optical Science and Technology, July 30-Aug 4, 2000, San Diego

- Program Committee: *Conference on Mathematical Modeling, Estimation, and Imaging*

2000 SIAM Annual Meeting, July 10-14, 2000, Puerto Rico

- Organized and chaired two mini-symposia: *Mathematics in Image Formation and Processing, I, III*

SIAM 45th Annual Meeting, Stanford, CA, July 14-18, 1997

- Mini-symposium Organizer and Session Chair: *Statistical Methods in Inverse Problems and Tomography*

Conference on Optimal Control, University of Florida, Gainesville, Feb. 1997

- Co-organizer and session chair

Conference Participation

Minzu University of China 60th Anniversary Celebration, Beijing, China, June 16 – 18, 2011

Applied Inverse Problems Conference, Texas A&M University, College Station, TX, May 23 – 27, 2011

SERU (Student Experiences in the Research University) Conference, University of North Carolina - Chapel Hill, April 30 – May 1, 2011

UVP Network Meeting, Reinvention Center, University of Texas, Austin, April 28 – 29, 2011

State University System Undergraduate Deans Meeting, Florida State University, Feb. 25, 2011; University of South Florida, Tampa, Oct 28, 2010

Reinvention Center Annual Conference and UVP Network Meeting, Washington DC, Nov. 11 – 13, 2010

NROTC Annual Meeting, Lexington, VA, Oct. 21 – 23, 2010

Mathematics and Algorithms in Tomography, Oberwolfach, Germany, Apr. 11 – 17, 2011

AAC&U Annual Meeting, Washington DC, Jan. 20 – 23, 2010

UVP Network Meeting, Reinvention Center, University of Notre Dame, Oct. 8 – 9, 2010

Undergraduate Research Conference, University of Central Florida, Orlando, Sept. 25 – 26, 2010

VSA Learning Outcomes Workshop, Milwaukee, Wisconsin, Aug. 5 – 7, 2010

SAEOPP McNair Scholars Conference, Atlanta GA, Jun. 26 – 28, 2010

UTeach Conference, University of Texas, Austin, May 27 – 29, 2009

Undergraduate MATHFest VI, Panelist: “How to Successfully Negotiate Graduate School”. Xavier University, New Orleans, LA, Oct. 1996

Professional Activities

Member, UVP Network, The Reinvention Center, 2009 - present

Member, Society for Industrial and Applied Mathematics (SIAM), 1997- 2004, 2006 – present

Member, Institute of Electronic and Electrical Engineers (IEEE), 1997 – present

Secretary, SIAM Activity Group in Imaging Sciences, 2000 - 2002

Advisory Board for SIAM Activity Group in Imaging Science, 1999-2002

Member of group that established the SIAM Activity Group in Imaging Science in 1999. Our tasks included the formulation of the Rules of Procedure, Statement of Purpose, Scope and Aims; and soliciting statements of support from SIAM members.

Reviewer for:

Inverse Problems, SIAM Journal of Numerical Analysis, 1995 European Control Conference, IEEE Transactions on Automatic Control, IEEE Transactions on Image Processing, IEEE Transactions on Medical Imaging, IEEE Transactions on Nuclear Science, IEEE Medical Imaging Conferences (2000, 2006), Journal of Mathematical Imaging and Vision, Physics in Medicine and Biology, National Science Foundation, Idaho State Board of Education, MacMillan Publishing Company.

Theses and Dissertations Directed

M. Mahoney, M.S., University of Florida, (expected Dec. 2011), *Quaternion-based Image Registration*

J. Zahnen, Ph.D., University of Florida, Dec. 2006, *Penalized Maximum Likelihood Methods for Emission Tomography*

R. Carroll, Ph.D., University of Florida, Dec. 1998, *An Orthogonal Series Approach to Positron Emission Tomography*

J. Liu, M.Sc., Texas Tech University, May 1989, *A Numerical Inverse Convolution Method*

C. Sissel, M.Sc., Texas Tech University, May 1988, *A Generalization of Young's Inequality*

Courses Taught

Undergraduate

Business Calculus, Calculus I, II, III, Advanced Calculus, Differential Equations, Partial Differential Equations, Stochastic Processes, Numerical Analysis, Numerical Linear Algebra, Computational Linear Algebra

Graduate

Mathematical Statistics, Seminar in Applied Mathematics, Numerical Linear Algebra, Numerical Analysis, PDE Methods in Imaging, Tomography

Other Educational Activities

Work with South Eastern Alliance for Graduate Education and the Professoriate (SEAGEP)

- Session leader at recruitment fair, UF, Mar 1, 2008.
- Director and Organizer for the *SEAGEP REU Program on Imaging*, University of the Virgin Islands (UVI), St. Thomas, USVI, June 4-30, 2006. This REU program was funded by a grant from the NSF (PI: J. Glover), and was administered by SEAGEP at UF in collaboration with the Science and Math Division at UVI. My duties included:
 - (1) Establishing and organizing the team consisting of three UF Math faculty and two graduate students
 - (2) Planning, supervising and directing the technical activities of the entire workshop which included lectures and computer lab sessions
 - (3) Developing and teaching a mini-course on *Medical Imaging* appropriate for the mathematical maturity of the undergraduate students in the workshop
- Talk on *Imaging* presented to undergraduate students at the University of the Virgin Islands, April 2006

Interdisciplinary Curriculum Development

- In 1994-96 I worked with the Succeed Program in the College of Engineering to develop and implement science and mathematics undergraduate courses that incorporate engineering concepts and technology in the classroom.
- In 2001, I developed and taught a graduate course on the mathematical and numerical aspects of image reconstruction in medical tomography.

Non-technical Talks/Articles

The Mathematics of Medical Imaging, talk presented to Institute for Learning in Retirement Series, Oak Hammock, Gainesville, Feb. 13, 2007

Getting to the Heart of Medical Imaging, B. A. Mair, CLASNotes, June-July, 2005

Mathematics in Tomography, B. A. Mair, CLASNotes, 1997

Invited Talks and Seminars

1. Conference on Applied Inverse Problems, Vienna, Austria, July 20-24, 2009, *Cardiac image and motion estimation from Poisson data*.
2. Workshop on Inverse and Partial Information Methodology, Radon Institute for Computational and Applied Mathematics, Linz, Austria, Oct. 27-31, 2008, *Algorithms for penalized maximum likelihood estimation from blurred photonic data*.

3. 2008 SIAM Imaging Science Conference, San Diego, CA, July 7-9, 2008, *Motion compensation in gated emission tomography*.
4. University of Göttingen, Department of Physics, Germany, May 2008, *A Non-Monotone Algorithm for Image reconstruction from Photonic Data*.
5. SIAM-SEAS 2008, University of Central Florida, Mar. 14, 2008, *Termination of the MLEM Algorithm for PET Reconstructions*.
6. University of Massachusetts, Department of Radiology, Worcester, MA, Sept. 28, 2007, *Motion Compensation in Gated Cardiac Emission Tomography*.
7. Texas Tech University, Department of Mathematics & Statistics, Lubbock, TX, April 12, 2007, *Expectation-Maximization Algorithms in Emission Tomography*.
8. Valdosta State University, Apr. 6, 2006, *Nuclear Cardiac Imaging*.
9. Meeting on Mathematical Methods in Tomography, Oberwolfach, Germany, Jul. 30-Aug. 5, 2006, *An Algorithm for Penalized Maximum Likelihood Estimation in Tomography*.
10. Workshop on Statistical Inverse Problems, University of Göttingen, Germany, Mar. 25-26, 2006, *Joint Emission and Motion Estimation for a Cardiac Cycle in Gated Emission Tomography*.
11. Institute for Mathematical Stochastics, University of Göttingen, Germany, June 20-July 2, 2005, *Lecture Series on Statistical Inverse Problems* (9 talks).
12. The Washington Academy of Biomedical Engineering 2004-2005 Workshop Series, George Washington University, April 5, 2005, *Joint Motion Estimation and Image Reconstruction in Cardiac Emission Tomography*.
13. Conference on Systems Analysis, Data Mining and Optimization in Biomedicine, Gainesville, FL, Feb. 2-4, 2005, *Simultaneous Estimation of Myocardial Intensity and Motion*.
14. Workshop on Mathematical Methods in Imaging and Vision, UF, Gainesville, FL, Jan. 24-27, 2004, *Simultaneous Motion Estimation and Image Reconstruction in Cardiac Emission Tomography*.
15. Howard University, Washington, D.C., Department of Mathematics, Nov. 14, 2003, *Simultaneous Motion Estimation and Image Reconstruction in Cardiac Emission Tomography*.
16. First SIAM Conference on Imaging Science, Boston, Mar. 4-6, 2002, *Image and Motion Estimation in Gated Cardiac ECT*.
17. North Carolina State University, Department of Mathematics, March 7, 2002, *Mathematical Models in Static and Dynamic Emission Tomography*.
18. North Carolina State University, Department of Statistics, Feb. 1, 2002, *Mathematical Representation for Detection Probabilities in Positron Emission Tomography*.
19. J. Ernest Wilkins Lecture at National Association of Mathematicians MathFest XI, Florida A & M University, Tallahassee, Oct. 4-6, 2001, *Mathematics in Tomography*.
20. SampTA, University of Central Florida, Orlando, May 13 - 17, 2001, *A Mathematical Representation of PET Probabilities*.
21. AMS Joint Mathematics Meetings, New Orleans, LA, Jan. 10-13, 2001, Special Session on Interaction of Inverse Problems and Image Analysis, *Applications of Measure Theory to Imaging*.
22. AMS Joint Mathematics Meetings, New Orleans, LA, January 10-13, 2001, Special Session on Integral Transforms, *Limitations of the Radon Transform in Emission Tomography*.

23. Frontier Research in Theoretical Statistics 2000, Eindhoven University of Technology, The Netherlands, Aug. 17-19, 2000, *An exact representation for PET probabilities.*
24. SPIE's 45th Annual Meeting, the International Symposium on Optical Science and Technology, San Diego, July 31-Aug 4, 2000, *Orthogonal series approach to reconstructing 2D PET images using data obtained from detector tubes of arbitrary width.*
25. SIAM Annual Meeting, Puerto Rico, July 10-14, 2000, *A mathematical method to account for detector width in 2D PET.*
26. IMACS 2000 International Conference on Scientific Computing and Mathematical Modeling, Milwaukee, WI, May 25-27, 2000, *Simultaneous de-noising and edge-detection by nonlinear PDEs.*
27. Emory University, Department of Mathematics & Computer Science, Atlanta, Feb 2000, *A New Method to Account for Detector Width in PET.*
28. Inverse Problems in Statistics, Mathematisches Forschungsinstitut Oberwolfach, Jan. 4-8, 1999, *Reconstruction of Positron Emission Tomography Images.*
29. SIAM Southeast Regional Mathematics in Industry Workshop, North Carolina State University, Oct. 10--12, 1999, *A New Mathematical Model for Positron Emission Tomography.*
30. Lawrence Livermore National Labs, Livermore, CA, Nov. 16--17, 1998, *Mathematics in Imaging.*
31. Lockheed Martin, Orlando, July 28, 1998, *PDE Methods in Automatic Segmentation and Edge Extraction.*
32. Université de Nancy, France, Dec. 8-13, 1997, *New Statistical Reconstruction Algorithms for Positron Emission Tomography.*
33. Université de Nancy, France, Dec. 8-13, 1997, *Positron Emission Tomography, Borel Measures, and Weak Convergence.*
34. SIAM 45th Annual Meeting, Stanford University, July 14-18, 1997, *A Novel Weighted Least Squares Method for Poisson Data.*
35. Third Conference for African-American Researchers in the Mathematical Sciences, Morgan State Univ., June 1997, *Mathematical Issues in Positron Emission Tomography.*
36. Workshop on Minorities and Applied Mathematics-Connections to Industry, IMA, University of Minnesota, Oct. 1996, *Two Mathematicians, an Engineer and a PET.*
37. Workshop on Wavelets and Statistics, Université de Montréal, Quebec, Canada, April 1996, *New statistical algorithms for reconstruction of PET images.*
38. Dartmouth College, NH, January 25, 1996, *A unified theory of statistical and deterministic inverse problems.*
39. AMS 899th Annual Meeting, Special Session on Inverse Problems, Orlando, March 1995, *Semi-discrete positron emission tomography.*
40. Conference on Computation and Control, Montana State University, August 1994, *Statistical inverse problems.*
41. University of Central Florida, April 12, 1994, *Statistical inverse estimation.*
42. Minisemester on Parametric and Shape Optimization, Stefan Banach International Mathematical Center, Warsaw, Poland, March - April 1993, *Statistical and deterministic inverse problems.*
43. Minisemester on Parametric and Shape Optimization, Stefan Banach International Mathematical Center, Warsaw, Poland, March - April 1993, *Introduction to wavelets I, II.*

44. Third Conference on Computation and Control, Bozeman, Montana, August 1992, *Over-regularization of ill-posed problems*.
45. SIAM Conference on Control and its Applications, Minneapolis, Minnesota, Sept. 1992, *Parameter choice in Tikhonov regularization*.
46. Conference on Computation and Control, Montana State University, Aug. 1990, *On inverse heat conduction problems*.
47. 1990 Texas Partial Differential Equations Conference, University of Texas, Arlington, March 1990, *Discrete recovery of initial data for parabolic systems*.
48. University of Florida, Gainesville, FL, Jan. 1989, *Fatou Theorems and Inverse problems for Parabolic PDE's*.
49. Conference on Computational Mathematics and Control Theory, Montana State University, Aug. 1988, *Recovery of surface temperature via convolutions*.
50. Eleventh Annual Texas Differential Equations Meeting, Texas A&M University, April 1988, *An inverse problem for the heat equation*.
51. Conference on Potential Theory, Prague, Czechoslovakia, July 1987, *Generalized approach regions*.
52. AMS 93rd Annual Meeting, Special Session on Classical Real Analysis, San Antonio, Jan. 1987, *A generalized local Fatou theorem*.
53. Texas Tech University, Lubbock, Feb. 1986, *A generalized Fatou theorem*.
54. Florida International University, Miami, Jan. 1986, *A generalized Fatou theorem*.
55. Meeting on Potential Theory, Mathematisches Forschungsinstitut Oberwolfach, July 1984, *Fine and Parabolic Limits*.
56. Florida International University, Miami, Apr. 1984, *Boundary behavior of positive solutions of parabolic equations*.

Contributed Posters and Talks

1. IEEE Medical Imaging Conference, Dresden, Germany, Oct. 2008, *A statistical stopping rule for MLEM reconstructions in PET*.
2. IEEE Medical Imaging Conference, San Diego, CA, Oct. 29-Nov. 4, 2006, *A multi-scale stopping criterion for MLEM reconstructions in PET*.
3. IEEE Medical Imaging Conference, San Diego, CA, Oct. 29-Nov. 4, 2006, *A generalization of Green's one-step-late algorithm for penalized ML reconstruction of PET images*.
4. IEEE International Symposium on Biomedical Imaging, Washington, DC, July 7-10, 2002, *Simultaneous motion estimation and image reconstruction from gated data*.
5. IEEE Medical Imaging Conference, Nov. 9-15, 1997, *An alternating minimization weighted least squares reconstruction algorithm*.
6. IEEE Medical Imaging Conference, Nov. 2-9, 1996, *Filter banks and the EM algorithm*.
7. IEEE Medical Imaging Conference, Oct. 21-28, 1995, *A refined mathematical model for positron emission tomography*.
8. The International Society for Optical Engineering 40th Annual Meeting, San Diego, July 1995, *Semi-infinite positron emission tomography*.
9. Second International Conference on Industrial and Applied Mathematics, Washington, D.C., July 1991, *Determination of initial states of parabolic systems from discrete data*.
10. AMS 95th Annual Meeting, Phoenix, AZ, Jan. 1989, *On the regularity of splines*.

11. AMS 92nd Annual Meeting, New Orleans, Jan. 1986, *Integral representations of positive solutions of the heat equation on some unbounded domains.*
12. AMS 91st Annual Meeting, Anaheim, Jan. 1985, *Boundary behavior of positive solutions of the heat equation on a semi-infinite slab.*

Refereed Publications

1. J. G. Parker, B. A. Mair, and D. R. Gilland, "Respiratory motion correction in gated cardiac SPECT using quaternion-based rigid body registration," *Medical Physics*, vol. 36, pp. 4742-4754, 2009.
2. D. R. Gilland, B. A. Mair, and J. G. Parker, "Motion estimation for cardiac emission tomography by optical flow methods," *Phys. Med. Biol.*, vol. 53, pp. 2991-3006, 2008.
3. W. W. Hager, B. A. Mair, and H. Zhang, "An affine-scaling interior-point CBB method for box constrained optimization," *Mathematical Programming*, 32 pages, Oct. 2007.
4. J.-H. Chang, J. M. M. Anderson, and B. A. Mair, "An accelerated penalized maximum likelihood algorithm for positron emission tomography," *IEEE Trans. Nucl. Science*, vol. 54, pp. 1648-1659, 2007.
5. B. A. Mair, D. R. Gilland, and J. Sun, "Estimation of images and nonrigid deformations in gated cardiac ECT," *IEEE Trans. Med. Imag.*, vol. 25, no. 9, pp. 1130-1144, 2006.
6. B. A. Mair and J. Zahnen, "Penalized image reconstruction and cardiac motion," *Mathematical Methods in Tomography*, Oberwolfach Report No. 64, , pp. 65-68, A. Louis, F. Natterer, and E. T. Quinto (eds.), 2006.
7. J. M. M. Anderson, R. Srinivasan, B. A. Mair and J. R. Votaw, "Accelerated penalized weighted least-squares and maximum likelihood algorithms for reconstructing transmission images from PET transmission data," *IEEE Trans. Med. Imag.*, vol. 24, pp. 337-351, 2005.
8. D. C. Wilson and B. A. Mair, "Thin-plate spline interpolation," *Sampling, Wavelets, and Tomography*, (J. J. Benedetto and A. I. Zayed,eds.), Birkhäuser, Boston, 2004, pp. 311-340.
9. Z. Cao, D. R. Gilland, B. A. Mair and R. J. Jaszczak, "Three-dimensional motion estimation with image reconstruction for gated cardiac ECT," *IEEE Trans. Nuclear Science*, vol. 50, no. 3, pp. 384-388, 2003.
10. J. M. M. Anderson, R. Srinivasan, B. A. Mair and J. Votaw, "Hidden Markov Model-based attenuation correction for positron emission tomography," *IEEE Trans. Nuclear Science*, vol. 49, pp. 2103-2111, 2002.
11. D. R. Gilland, B. A. Mair, J. E. Bowsher and R. J. Jaszczak, "Simultaneous reconstruction and motion estimation for gated cardiac ECT," *IEEE Trans. Nucl. Science*, vol. 49, pp. 2344-2349, 2002.
12. B. A. Mair, M. Rao and J. M. M. Anderson, "A minimum Chi-squared method for indirect parameter estimation from Poisson data," *Statistica Neerlandica*, vol. 56, pp. 165-178, 2002.
13. B. A. Mair and J. Zahnen, "Mathematical models for 2D positron emission tomography," *Contemporary Mathematics*, vol. 313, American Math. Soc., 2002, pp. 153-169.
14. Y. Chen, C. A. Z. Barcelos, and B. A. Mair, "Smoothing and edge detection by time-varying coupled nonlinear diffusion equations," *Computer Vision & Image Understanding*, vol. 82, pp. 85-100, 2001.

15. R. B. Carroll, and B. A. Mair, "A new model and reconstruction method for 2D PET based on transforming detector tube data into detector arc data," *Journal of Mathematical Imaging and Vision*, vol. 14, pp. 165-185, 2001.
16. B. A. Mair, "A mathematical model incorporating the effects of detector width in 2D PET," *Inverse Problems*, vol. 16, pp. 223-246, 2000.
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