

## CURRICULUM VITAE

**Farhad Jafari**

### ADDRESS

Department of Radiology  
University of Minnesota  
MMC-292, 412 Delaware St. S.E  
Minneapolis, MN 55455  
Tel: (307) 760-6796  
E-Mail: fjafari@umn.edu and fjafari@uwyo.edu

### EDUCATION

1989	Ph.D. (Mathematics):	University of Wisconsin-Madison
1986	M.A. (Mathematics):	University of Wisconsin-Madison
1983	Ph.D. (Medical Physics):	University of Wisconsin-Madison
1980	M.S. (Medical Physics):	University of Wisconsin-Madison
1978	B.S. (Chemistry, Physics):	University of Wisconsin-Madison

### CERTIFICATION

1997 DABR (Diagnostic Radiological Physics): American Board of Radiology

### ADMINISTRATIVE APPOINTMENTS

2009-2015: Department Head, Mathematics Department, University of Wyoming  
2015-2017: Elected Secretary, Vice Chair and Chair of the Rocky Mountain Mathematics Consortium (RMMC) Board of Governors  
2013-2018: Director of the RMMC Summer School  
2008-2009, 2001-2002, 1992-1993: Graduate Committee Chair, Mathematics Department  
2009-2010, 2012-2013: Member of the Head's Council, College of A&S, Dean: Oliver Walter  
2007-2010: Elected member of the Graduate Council, Graduate School, Dean: Don Roth

### ASSOCIATE EDITOR

Semigroup Theory and Its Applications, Linear and Topological Algebra, MDPI Mathematics

## ACADEMIC POSITIONS

9/2021-present: Adjunct Professor of Mathematics, National Institute of Technology Meghalaya  
1/2020-present: Professor of Radiology, University of Minnesota  
12/2019: Emeritus Professor of Mathematics, ECE and Biomedical Sciences, University of Wyoming  
4/2016-5/2016: Visiting Professor, KTH, Stockholm, Sweden  
4/2016-5/2016: Visiting Professor, Ljubljana University, Ljubljana, Slovenia  
9/2015-12/2015: Visiting Professor, Institute of Mathematics and Its Applications, University of Minnesota, Minneapolis, MN  
2014-2019: Adjunct Professor of Electrical and Computer Engineering, University of Wyoming  
2010-2019: Adjunct Professor of Biomedical Sciences, University of Wyoming  
2006-2007: New Directions Professor, Institute of Mathematics and Its Applications, University of Minnesota, Minneapolis, MN  
1999-2019: Professor of Mathematics, University of Wyoming  
1994-1999: Associate Professor of Mathematics, University of Wyoming  
1991-1994: Assistant Professor of Mathematics, University of Wyoming  
1989-1991: Assistant Professor of Mathematics, Bowdoin College, Maine  
1/1989-8/1989: Lecturer in Mathematics, University of Wisconsin-Madison  
1984-1988: Teaching Assistant in Mathematics, University of Wisconsin-Madison  
1983-1984: Postdoctoral Research Associate in Medical Physics, University of Wisconsin-Madison  
5/1978-11/1978: Research Scientist, Mayo Clinic, Rochester, MN  
1978-1983: Research Assistant in Medical Physics, University of Wisconsin-Madison

## HONORS AND AWARDS

2018, **Lifetime Ellbogen Award\***, University of Wyoming  
2015, **George Duke Humphrey Award\***, University of Wyoming  
2014, Top Prof, Mortar Board Teaching Award, University of Wyoming  
2010, **Distinguished Graduate Mentor Award, Graduate School\***, University of Wyoming  
2008, 1993 A&S Extraordinary Merit in Research, University of Wyoming  
2006-2007, New Directions Professorship, IMA, University of Minnesota  
2002, 1997 A&S Top 10 Faculty, University of Wyoming  
2001, 1993 Extraordinary Merit in Teaching, College of Arts and Sciences, University of Wyoming  
1999, Promotion to Full Professor, University of Wyoming  
1999, Featured Faculty, UWYO Magazine, University of Wyoming  
1997, 1996, 1994 Top Prof, Mortar Board Teaching Award, University of Wyoming  
1997, Mortar Board, Advisor of the Year, University of Wyoming

1997, 1996 Excellence in Advising, University of Wyoming  
1996, The Carnegie Foundation for the Advancement and Support of Education (CASE), **1996 Wyoming Professor of the Year\***  
1996, **John P. Ellbogen Teaching Award for Meritorious Classroom Teaching\***, University of Wyoming  
1994, Tenure and Promotion, University of Wyoming  
1989, Teaching Award in recognition of outstanding undergraduate mathematics teaching, University of Wisconsin-Madison  
1986, William Vilas Research Fellowship: Sponsored by Professor Walter Rudin  
1980, Best Scientific Exhibit Award, American Association of Physicists in Medicine  
\* Highest awards in their categories

## AREAS of SPECIALIZATION

**General:** Functional Analysis, Operator Theory, Harmonic Analysis, Mathematical Physics, Mathematical Robotics and Machine Learning

**Specific:** Moment problems, Positivity, Control Theory, Variational Problems, Sparsity, Semigroups of Operators, PDE, Inverse Problems in Robotics, DNA and Cryptology

## COURSES TAUGHT

**Graduate Level:** Function Theory, Partial Differential Equations, Functional Analysis, Nonlinear Functional Analysis, Topics in Operator Theory, Real Analysis, Complex Analysis, Semigroup Theory, Harmonic Analysis, Spectral Theory of Unbounded Operators, Functional Analysis in PDE

**Undergraduate Level:** Introduction to Mathematical Analysis, Measure Theory, Complex Variables, Partial Differential Equations, Putnam Seminar, Polynomials, Linear Algebra, Applied Differential Equations I and II, Calculus I-III, College Algebra, Business Calculus, Finite Mathematics

## THESIS SUPERVISION

### **Ph.D. Students:**

1. Damian Betebenner (1995, On the invariant subspace problem)
2. Richard Raposa (1996, On cyclicity in analytic Hilbert spaces)
3. Bryan Bornholdt (1997, On isometries of Fréchet spaces)
4. Sumeet Aphale (2005, co-chair with J. McInroy, On optimal fault tolerant Gough-Stewart platforms)

5. Zhijiang Guo (2006, co-chair with J. McInroy, On control of parallel kinematic manipulators)
6. Saikat Mukherjee (2011, On invariants of Paley-Wiener spaces)
7. Saroj Aryal (2013, On the sparse moment problem)
8. Hayoung Choi (2015, Matrix completion and the Hamburger moment problem)
9. Regene DePiero (2019, expected)
10. Bryce Christopherson (2019, expected)
11. Yelena O'Brien (2019, expected)
12. Thomas Dean (started in 2019)
13. Cynthia Cohen (started in 2019)

**M.S. Students:**

1. Paul K. Johnson (1992, Plan A paper: On the range of holomorphic functions belonging to some function spaces)
2. Greg Waterman (1994, Plan B paper: On the Daniell integral)
3. Henning Blohm (1994, Plan A paper: On existence and properties of linear stochastic processes on normed spaces),
4. Lina Avramidou (1998, Plan A paper: On norm of composition operators),
5. Heather Neu (1998, Plan B paper: An overview of wavelets)
6. Douglas Blackburn (2001, Plan A paper: On optimal Portfolios)
7. Susan Frost (2005, Plan A paper: On decomposition of images by smoothness)
8. Andrew Westmeyer (2005, Plan B paper: On semigroups in Banach spaces)
9. Anna Parmely (2005, Plan B paper: On Spectral theory of unitary groups),
10. Debra Swedberg (2012, Plan B paper: On continued fractions)

**Honors Theses:**

1. Jon Jay (1991, Bowdoin College)
2. Ryan Landon (1998)
3. Whitney Holley (2003)
4. Jeff Lang (2006)
5. Evan Racine-Johnson (2007)
6. Courtney Smith (2013-2015)
7. Thomas Rochais (2013-2015)
8. Emily Shaw (Fall 2017-Spring 2018)

## CONTRACTS & GRANTS

### **Funded Projects as PI or coPI:**

CoPI: "NOYCE, Sustaining Wyoming advancement in Mathematics and Science (SWARMS)," (PI: Andrea Burrows), NSF, 2014-2019, \$1.1M

CoPI: "NSF: RMMC Conference: Functional analytic methods in error prediction and its applications," (PI: Victor Ginting), NSF, 2016-2017, \$29,500

PI: "NSF Subcontract: Extended Visiting Professorship at the IMA for the year on Control Theory and Its Applications," NSF, 2015, \$30K

CoPI: "NSF: CBMS Conference: New advances in classification of  $C^*$ -algebras," (PI: Zhuang Niu), NSF, 2014-2015, \$35K

CoPI: "NSF: RMMC Conference: Classification of AF-Algebras," (PI: Zhuang Niu), NSF, 2014-2015, \$35K

CoPI: "ITEST: Using Gaming and Robotics for Computational Thinking and Visualization," (PI: Jacqueline Leonard, SMTC, and 3 other CoPIs), NSF, 2013-2017, \$1.2M

CoPI: "Detecting Motion from a Moving Platform," (PI: John McInroy, ECE Dept, UWYO and 5 other coPIs), Tyndall AFRL/Joint Ground Robotics Enterprise, 2008-2013, \$1.6M.

CoPI: "Coordinated Hyperspectral Imaging Nano-Satellite Networks for Space Situational Awareness," (PI: John McInroy, ECE Dept, UWYO and 2 other CoPIs), DEPSCoR, 2007-2010, \$445,943.

PI: "Real Algebraic Geometry and Application to Control Theory," NSF-IMA, 2006-2007, \$46,000.

CoPI: "Analysis of Active Rack Isolation System Data to Determine Synergy with the University of Wyoming Hexapod Program," (PI: John McInroy), NSA ISS Energy Outreach Grant, 2004-2007, \$22,964.

PI: "Decomposition of Images by Smoothness," NASA Space Science Grant, 2004-2005, \$22,000.

CoPI: "High Precision, High Frequency, Fault Tolerant Manipulations of Multiple Payloads Aboard a Moving Bus," (PI: John McInroy), DEPSCoR, 2002-2005, \$339,323.

CoPI: "State-of-the-art parallel robotic micromanipulators," (PI: John McInroy), NASA, 2001-2002, \$66,371.

PI, Flittie Sabbatical, University of Wyoming, 1999-2000, \$9300

PI, University of Wyoming International Travel Grant, 1994, \$500

PI, International Congress of Mathematicians, NSF, 1994, \$1450

PI, University of Wyoming Basic Research Grant, 1992-1993, \$800

PI, University of Wyoming Basic Research Grant, 1991-1992, \$1200

**Proposals Not Accepted as PI or CoPI:**

PI: "ALL-IN-STEM", Wyoming Department of Education, (CoPIs: J. Leonard, D. Robertson, D. Wiig), 2014-2017, \$200,000 (per year for 3 years).

PI, "NSF RNMS Grant: Data Driven Numerical Approximation: The Next Generation," (with Anne Gelb (PI at ASU), and Yang Wang (PI at Michigan State U)), 2011-2016, (WY part) \$568,0000

PI: "RI: Small: Swarm Robotic Chemical Plume Tracing in Challenging Simulated Environments," (CoPIs: David Thayer, Stefan Heinz and Diana Spears), NSF, 2009-2012, \$498,000.

CoPI: "Dynamic parallel manipulators," (PI: J. McInroy, CoPI: J. O'Brien), DoD-MDA, 2005-2008, \$600,000

PI: "Propagation and Scattering of Extremely Short EM Pulses in the Ionosphere," (CoPIs: S.S. Sritharan and D.R. Thayer), DoD EPSCoR grant, 2002-2005, \$500,000

PI, "Spectrum of Composition Operators," NSF, 1997-2000, \$42,610

PI, "Composition Operators in Function Spaces in SCV," NSF Young Investigator Award, NSF, 1993-1996, \$75,000

---

**SELECTED PRESENTATIONS/SYMPOSIA/INVITED LECTURES/SEMINARS**

*Variational methods and Optimal Control*, Invited Colloquium, Department of Mathematics, Wayne State University, November 2018.

*Reconstructing Images from partial data*, CU-Denver, September 2018.

*Optimization and moment completions*, Invited seminar, Department of Economics and Finance, University of Wyoming, October 2016.

*Nonlinear systems, moments and moment completions*, Invited seminar, Mathematical Theory of Network Systems Conference, Minneapolis, July 2016.

*Hamburger moment problem and moment completions*, KTH, Stockholm, Sweden, April 2016.

*Variational problems, moments and moment completions*, IMA Colloquium, December 2015.

*Hilbert's 17th problem and moment problems*, invited presentation, Special Session of the AMS in honor of James Jamison, Memphis, TN, October 2015.

*Sums of squares, positive definiteness and Moment problems in several variables*, Invited Presentation, Mathematical Physics Seminar Series, University of Minnesota, Minneapolis, October 2015.

*Sparse Radon Transform and the Hamburger moment problem*, Invited Presentation, 7th International Conference on Function Spaces, Edwardsville, IL, May 2014.

*Sparse Moment Problems in Several Variables*, Invited Presentation, AMS Special Session, San Diego, CA, Jan 2013.

*Mathematics of Tomography: What does operator theory tell us?*, Colloquium, Macalester College, April 2011.

*How much data is enough?*, Invited Colloquium, San Diego State University, San Diego, CA, November 2010.

*Subsequences of moment sequences*, 6th International Conference on Function Spaces, Edwardsville, IL, May 2010.

*Pose estimation with point to convex region correspondence*, Kirtland AFRL, Albuquerque, July 2008.

*Mathematics in optimizing performance*, Homecoming Public Lecture, University of Wyoming, October 2007.

*Semigroups, univalent function theory, and control*, 3 hours, University of Montana Lecture Series, April 2007.

*Holomorphic flows and cocycles in multiply connected domains*, Iowa State University, February 2007.

*Control and semigroup theory*, University of Minnesota, ECE/CsDy Seminar, November 2006.

*Loewner's theory and a sharp estimate on univalent functions*, University of Minnesota, October 2006.

*Geometric point of view in design of Gough-Stewart platforms*, NASA Johnson Center, Houston, May 2005.

*$H^\infty$ -control: does it really work?*, Colloquium, ECE Department, University of Wyoming, April 2005.

*Transfer Matrices of Gough-Stewart platforms*, 42nd International Conference in Decision and Control, Maui, HI, Dec. 2003.

*Design of orthogonal, fault tolerant, Gough-Stewart platforms*, Kirtland Air Force Research Lab, Kirtland, NM, October 2003.

*Overview of the University of Wyoming parallel kinematic machines - design issues*, NGST, Pasenda, CA, June 2003.

*On a theorem of A. Morse*, 4th International Conference on Function Spaces, Edwardsville, IL, May 2002.

*State-of-the-art in Stewart Platform design*, SPIE Meeting on Robotics, Contributed Talk, San Diego, March 2002.

*The Lax-Beurling theory and controllability*, Distinguished Speaker, California State University at Long Beach, Feb. 2002.

*The Stone-Weierstrass Theorem revisited*, Invited Plenary Talk, AMS-MAA Annual Meeting, Washington, DC, Jan. 2000.

*$H^\infty$  optimal control - An overview*, Invited Colloquium, CSU, Ft. Collins, CO, Nov. 1999.

*Biholomorphy and Isometries*, Invited Colloquium, University of Montana, Missoula, MT, October 1999.

*Norm of Composition Operators* (with P. Avramidou), Third Conference on Function Spaces, Organized by K. Jarosz, Southern Illinois University at Edwardsville, May 1998.

*Holomorphic flows, cocycles and coboundaries* (with T. Tonev, E. Toneva, K. Yale), Invited Paper, AMS Regional Meeting, Columbia, MO 1996.

*Some fixed point theorems for non-convex spaces* (with V. M. Sehgal), AMS-MAA Annual Meeting, Orlando, FL, January 1996.

*A Complex Rolle's Theorem for curves and its application to domains of univalence and a global inverse function theorem*, 1994 International Congress of Mathematics, Zürich, Switzerland

*On the range of functions in various holomorphic function spaces* (with D. Betebener), SIUE Meeting on Function Spaces, Organized by K. Jarosz, Edwardsville, IL

*Semigroups of composition operators and their cogenerators*, Invited Talk, Special Session on Composition Operators, Organized by Carl C. Cowen, Barbara D. McCluer, and Randall K. Campbell-Wright, AMS Meeting, Central Section, College Station, TX

*On semigroups of operators on Hardy spaces*, Invited Talk, Special Session on Holomorphic Spaces, Organized by John E. McCarthy, AMS-MAA Annual Meeting, San Antonio, TX

*Multipliers, Littlewood-Paley Theory and PDE*, Invited Talk, University of Alberta, Edmonton, Alberta, Canada

*Composition operators in Hardy and Bergman spaces in several variables*, Symposium in Complex Analysis, June 2-7, 1991, Madison, WI.



## PROFESSIONAL SERVICE

### **REVIEWER**

Member of 3-person Review Team, South Dakota State University, March 2014

Member of the NSF Review Panel, 2011-2012

### **REFEREE:**

Mathematical Reviews, Applied Mechanics Reviews, John Wiley and Sons, Proc. Amer. Math. Soc., Indian J. Math., Math. Mag., Contemporary Math., Complex Analysis and Operator Theory, International J. Mathematics, J. Math. Analysis and Applications, Integral Equations and Operator Theory, Probability and Statistics Letters, Rocky Mountain Math Journal, IEEE Transaction in Robotics and Automation, CDC Conference Proceedings, AIAA Journal, IREX, NSF, External Tenure and Promotion Decisions (many)

### **University Committees:**

University Tenure and Promotion Committee (2004-2007, 2016-2017), Faculty Senate (1999-2001), Faculty Rights and Responsibilities Committee (1999-2002)

### **College Committees:**

College of Arts and Sciences Independent Study Awards Committee (1997-1998; 2003-2004), College of Arts and Sciences Tenure and Promotion Committee (1995-1997; 2000-2003)

### **Department Committees:**

**Chaired Committees:** Hiring Committees (1997-1998, 2001-2002, 2003-2004), Colloquium Committee (1996-1997, 1998-1999, 2002-2004, 2007-2008), Graduate Committee (1992-1993, 2001-2002, 2008-2009), Ex Officio on a dozen departmental committees (2009- )

**Member:** Faculty Evaluation Committee (1994-1995, 1997-2002, 2004-2006), Head Hiring Committee (2001-2002), Hiring Committee (1992-1994, 1999-2003, 2004-2005), Graduate Committee ( 1991-2002, 2004-2005), Undergraduate Committee (1991-1998), Undergraduate and Graduate Advisor (6-12 students per year since 1992)

## OTHER ACTIVITIES

### **Organization:**

Co-Director, *Conference on Composition Operators on Spaces of Analytic Functions*, 1996 Rocky Mountain Mathematics Consortium, Laramie, WY. Lectures were presented by Professors Carl C. Cowen and Barbara D. MacCluer. Research presentations were given by more than 25 speakers from seven different countries and many universities throughout the United States. About 75 mathematicians attended this conference.

Special Session at the AMS Regional Meeting in Salt Lake City, UT, Sept 25-27, 1999 (with Siqi Fu and Peter Polyakov)

Co-Organizer, *ETF: Effective Teaching in Technical Fields*, 2005-2006 ECTL Conference Series (with David Thayer)

Organizer: Mathematics Department Retreats (2009-2014) and 90-min presentations on "State of the Department and Vision for the AY."

**Director of the RMMC Summer Workshops:**

1. 2012-2013: Advances in algebraic graph theory (co-directors: Duane Porter and Jason Williford)
2. 2013-2014: Stochastic Processes and Applications (co-directors: Hakima Bes-saih and Stefan Heinz)
3. 2014-2015: Classification of  $C^*$ -algebras (co-director: Zhuang Niu)
4. 2015-2016: Functional analytic methods in error prediction and applications (co-directors: Victor Ginting and Ekaterina Smirnova)

## PUBLISHED and UNDER REVIEW WORKS

### **PATENT:**

S. Mueller, F. Jafari, and D. Roth, *Improving the dependability and precision of artificial DNA for information-theoretic purposes*, Granted October 2020.

### **Books:**

F. Jafari, B. D. MacCluer, C. C. Cowen and A. D. Porter, Co-Editors, *Studies on Composition Operators*, Contemporary Mathematics 213, American Mathematical Society, Providence, RI, pp. 256. ISBN: 0-8218-0768-4., 1998.

### **Journal Articles in Preparation:**

1. Farhad Jafari, Jeff Schenker and Peter Semrl, *Linear maps preserving quasinilpotent operators*, J. Functional Analysis, 12 pp. (in preparation), 2018.
2. Emily Shaw and Farhad Jafari, *Linear invariants of graph Laplacians* (in preparation), 2020.

### **Journal Articles in Preparation (draft available):**

1. Farhad Jafari, Jeff Schenker and Peter Semrl, *Linear maps preserving quasinilpotent operators*, J. Functional Analysis, to be submitted in 2019.
2. Emily Shaw and Farhad Jafari, *Linear invariants of graph Laplacians*, to be submitted in 2021.

### **Refereed Journal Articles (in print or submitted):**

1. Bryce Christopherson, Farhad Jafari and Boris Mordukhovich, *Linear openness and characterization of asymptotic stabilizability with continuous feedback laws*, ESAIM, 27 pp., accepted.
2. Hayoung Choi, Victor Ginting, Farhad Jafari and Robert Mnatsakanov, *Modified Radon Transform inversion using moments*, J. Inverse and Ill-posed Problems (accepted), appeared in 2020.
3. Ekaterina Smirnova, Snehalata Huzurbazar and Farhad Jafari, *PERFect: Permutation based test for microbiome filtering*, Biostatistics, 15 pp., 2018.
4. Rohit Gupta, Farhad Jafari, Robert Kipka and Boris Mordukhovich, *Metric regularity and locally asymptotically stabilizing continuous stationary feedback laws*, Discrete and Continuous Dynamical Systems, 13 pp. (accepted), ArXiv: 1704.00867v1, 2017.

5. S. Mueller, F. Jafari and D. Roth, *A covert authentication and security solution for GMOs*, Atlas of Science, 3 pp (accepted), 2017.
6. S. Mueller, F. Jafari and D. Roth, *Improving the use of DNA in data storage*, European J. of Experimental Biology, 28 pp. (accepted), 2017.
7. S. Aryal, H. Choi and F. Jafari *Hamburger moment sequences and their moment subsequences*, Linear and Multilinear Algebra, 18 pp., 2017. Cite Web Id: 20160720737.
8. F. Jafari and T. McAllister, *Ellipsoidal cones in normed spaces*, J. Convex Analysis, 10 pp., appeared in Feb 2017.
9. S. Mueller, F. Jafari and D. Roth, *A covert authentication and security solution for GMOs*, BMC Bioinformatics, 17, 389-398, 2016.
10. David Thayer and Farhad Jafari, *Variational analysis of the quantum uncertainty principle*, International J. of Advanced Research in Physical Science (IJARPS), 3 (3), 21-33, 2016.
11. S. Aryal, H. Choi, and F. Jafari, 2016, *Hamburger moment sequences and completions in several variables*, Contemporary Mathematics, March 2017, in press.
12. Hayoung Choi and Farhad Jafari, *Matrix completion and the Hamburger moment problem*, Linear Algebra and Appl., 489, 217-237, 2016.
13. David Thayer and Farhad Jafari, *Spin Product Expectation Value Model*, International J. of Advanced Research in Physical Science (IJARPS), 2 (2), 18-26, 2015.
14. S. Mukherjee, F. Jafari, Jong-Min Kim, *Optimization of Spearman's Rho*, Revista Columbiana de Estadística 38 (1), 209-218, 2015.
15. F. Jafari, Z. Slodkowski and T. Tonev, 2014, *A new proof of the description of holomorphic flows on multiply connected domains*, 2014, Article ID 160579, 5 pp., 2014.
16. F. Jafari, Z. Slodkowski and T. Tonev, *Semigroups on Banach spaces of analytic functions*, Complex Analysis and Operator Theory. 6, 113-119, 2012.
17. S. Mukherjee, F. Jafari and J. McInroy, *On the range of composition operators on spaces of entire functions*, Contemporary Mathematics, Vol. 431, 385-396, 2011.
18. F. Jafari and M. Putinar, *Extremals of positive pluriharmonic functions on Euclidean balls*, Quarterly J. Math., 6, 1013-1022, 2010.
19. Chinmay S. Ukidve, John E. McInroy and F. Jafari, *Using redundancy to optimize manipulability of Stewart Platforms*, IEEE/ASME Transactions on Mechatronics, Vol. 13, No. 4, pp. 475-479, 2008.
20. F. Jafari and D. Prokhorov, *A Mayer problem in H-infinity optimal control*, IMA Journal, Vol. xx, 21-29, 2008.

21. Zhen Qi, John E. McInroy and F. Jafari, *Trajectory tracking with parallel robots using low chattering, fuzzy sliding mode controller*, J. of Intelligent and Robotic Systems, Vol. 48, No. 3, 2007.
22. F. Jafari and V.M. Sehgal, *Extension of a theorem of Himmelberg*, J. Math. Analysis and Appl., Vol. 327, No. 1, 298-301, 2007.
23. J. O'Brien, F. Jafari and J. Wen, *Determination of unstable singularities of parallel robots with N-arms*, IEEE Transaction on Robotics, Vol. 21., 2006.
24. J. McInroy and F. Jafari, *Symmetric orthogonal Gough-Stewart platforms*, IEEE Transaction on Robotics, Vol. 21., 2006.
25. F. Jafari, E. Toneva and T. Tonev, *Automatic differentiability of holomorphic cocycles*, Proc. Amer. Math. Soc. 133, 3389-3394, 2005.
26. Y. Yi, J. McInroy and F. Jafari, *Generating classes of isotropic Gough-Stewart platforms*, IEEE Transaction on Robotics, Vol. 21, 812-820, 2005.
27. F. Jafari, *Book Review: Hyperbolic conservation laws and the compensated compactness method* by Y. Lu, Applied Mechanics Reviews, 2003.
28. F. Jafari and J. McInroy, *Orthogonal Gough-Stewart Platforms for micromanipulators*, IEEE Transactions in Robotics and Automation, Vol. 19, 595-605, 2003.
29. C. Funkhouser, F. Jafari and W. Eubanks, *The mathematics of medical imaging in the classroom*, International J. Math. Education Sci. Tech. 33, 481-493, 2002.
30. R. Decker, J. Naughton and F. Jafari, *Automatic fringe detection for oil film interferometric skin friction measurement*, Int. Symp. on flow visualization 367, 1-8, 2000.
31. F. Jafari and R. Raposa, *On cyclicity in weighted Dirichlet spaces*, International J. Math. Sci. 22, 738-744, 1999.
32. P. Avramidou and F. Jafari, *On norm of composition operators on Hardy spaces*, Contemp. Math. 232, 47-55, 1999.
33. F. Jafari, *Book Review: Mecanique: Elements de Rationelle Mecanique* by R. Boudet and A. Chauvin (in French), Applied Mechanics Reviews, 99, 24-27, 1998.
34. F. Jafari and V. M. Sehgal, *Some fixed point theorems for non-convex spaces*, International J. Math. Sci. 21, 133-138, 1998.
35. F. Jafari, T. Tonev, E. Toneva and K. Yale, *Holomorphic flows, cocycles and coboundaries*, Michigan Math. J. 44, 239-253, 1997.
36. F. Jafari, *Book Review: Modelling Mathematical Methods and Scientific Computation* by Nicola Bellomo and Luigi Preziosi, Applied Mechanics Reviews 49, 55-56, 1996.

37. J. C. Evarad, F. Jafari and P. Polyakov, *Generalizations and applications of a complex Rolle's theorem*, Nieuw Archief voor Wiskunde 13, 173-180, 1995.
38. J. C. Evarad and F. Jafari, *Regular Hermite interpolation in an arbitrary connected open subset of a topological vector space*, J. Math. Analysis and Appl. 192, 841-854, 1995.
39. C. R. Reid and F. Jafari, *The kinematics and governing equations of continuum mixtures*, International J. Eng. Sci. 33, 411-428, 1995.
40. F. Jafari, *Book Review: Similarity and Dimensional Methods in Mechanics* 10th Edition, by L. I. Sedov, Appl. Mech. Reviews 47, 21, 1994.
41. J. C. Evarad and F. Jafari, *Direct computation of the simultaneous Stone-Weierstrass approximation of a function and its partial derivatives in Banach space, and combination with Hermite interpolation*, J. Approx. Theory 78, 351-363, 1994.
42. R. G. Buschman, J. C. Evarad and F. Jafari, *Evaluation of H-function inversion integrals*, J. Math. Anal. and Appl. 185, 713-725, 1994.
43. J. C. Evarad, F. Jafari and G. E. Moorhouse, *A sufficient condition for an entire function to be a polynomial of degree one*, Nieuw Archief voor Wiskunde 12, 9-13, 1994.
44. J. C. Evarad and F. Jafari, *The set of all  $m \times n$  rectangular real matrices of rank  $r$  is connected by analytic regular arcs*, Proc. Amer. Math. Soc. 120, 413-420, 1994.
45. F. Jafari, *Book Review: Introduction aux méthodes asymptotiques et à l'homogénéisation* par J. Sanchez-Hubert et E. Sanchez-Palencia, Appl. Mech. Reviews 46, 53-54, 1993.
46. F. Jafari, *Angular derivatives in polydiscs*, Indian J. Math. 35, 197-212, 1993.
47. F. Jafari, *Book Review: Continuum Mechanics For Engineers* by G. E. Mase and G. T. Mase, Appl. Mech. Reviews 45, B133-134, 1992.
48. F. Jafari, 1992, *Composition operators in Bergman spaces on bounded symmetric domains*, Contemporary Mathematics 137, 277-291, 1992; Revised and Extended in 1994 (widely circulated).
49. J. C. Evarad and F. Jafari, *A complex Rolle's Theorem*, Amer. Math. Monthly 99, 864-867, 1992.
50. F. Jafari, *Book Review: Special Functions of Mathematics for Engineers* by Larry C. Andrews, 2nd edition, Appl. Mech. Reviews 45, B62-63, 1992.
51. F. Jafari, 1991, *Carleson measures in Hardy and weighted Bergman spaces of polydiscs*, Proc. Amer. Math. Soc. 112, 771-781, 1991.
52. F. Jafari, *Bounded and compact composition operators in polydiscs*, Canadian J. Math. 42, 869-889, 1990.

53. F. Jafari, *Composition operators in polydiscs*, Ph.D. Dissertation, University of Wisconsin, Madison, 1989.
54. F. Jafari and P. D. Higgins, *Thermal modeling in cylindrical coordinates using effective conductivity*, IEEE Trans. on Ultrasonics UFFC-36, 191-196, 1989.
55. P. D. Higgins and F. Jafari, *Thermal distributions in spherical regions with variable thermal conductivity*, IEEE Trans. on Ultrasonics UFFC-33, 21-26, 1986.
56. F. Jafari, *Characterization of ultrasonic backscattering from the lungs*, Ph.D. Dissertation, University of Wisconsin, Madison, 1983.
57. B. Paliwal, C. Cardozo, F. Jafari and W. Caldwell, *Regional hyperthermia by microwave heating*, AMPI Med. Phys. Bull. 7, 127-132, 1982.
58. F. Jafari, E. Madsen and J. Zagzebski, *Exact evaluation of an ultrasonic scattering formula for a rigid immovable sphere*, Ultras. in Med. Biol. 7, 293-296, 1981.
59. B. Paliwal, C. Cardozo, F. Jafari and W. Caldwell, *Heating patterns produced by 434 MHz UHF 69*, Radiology 135, 511-512, 1980.

#### **Refereed Proceedings/Transactions:**

1. H. Choi, J. Cockburn and F. Jafari, 2016, *Nonlinear systems, moments and moment completions*, Proceedings of the International Conference on Mathematical Theory of Network Systems, 6 pages, Minneapolis, MN, July 2016.
2. C. Ukidve, J. McInroy and F. Jafari, *Quantifying and optimizing failure tolerance of a class of parallel manipulators*, in Parallel Manipulators, Advanced Robotic Systems International, 2008.
3. Z. Guo, J. McInroy and F. Jafari, *Realization of micromanipulating GSP with desired dynamics*, International Conference in Robotics and Automation, 6 pages, 2005.
4. Chinmay Ukidve, J. McInroy and F. Jafari, *Orthogonal GSP with optimal fault tolerant manipulability*, International Conference in Robotics and Automation, 6 pages, 2005.
5. J. McInroy and F. Jafari, *Tri-symmetric orthogonal Gough-Stewart platforms*, IEEE International Conference on Robotics and Automation, 948-953, 2005.
6. J. O'Brien, F. Jafari and J. Wen, *Self-motion in spatial parallel mechanisms with more than three legs*, IEEE International Conference on Robotics and Automation, 966-971, 2005.
7. Yong Yi, J.E. McInroy and F. Jafari, *Generating Classes of Orthogonal Gough-Stewart Platforms*, IEEE International Conference on Robotics and Automation, 4963-4968, 2004.

8. Yong Yi, J.E. McInroy and F. Jafari, *Optimum Design of a Class of Fault Tolerant Isotropic Gough-Stewart Platforms*, IEEE International Conference on Robotics and Automation, 4969-4974, 2004.
9. F. Jafari and J. McInroy, *Transfer matrices of orthogonal Gough-Stewart platforms*, Proc. of 42nd Conference on Decision and Control, 5865-5873, 2003.
10. J. McInroy and F. Jafari, *State-of-the-art in Stewart Platforms*, Proceedings of the 23rd SPIE Conference, 177-188, 2002.
11. R. Decker, J. Naughton and F. Jafari, *Fringe detection and interferometry*, Proceedings of the IAEA Conference, Ames National Laboratory, Ames, CA, 8 pages, 2000.
12. J. C. Evard and F. Jafari, *Remarks on simultaneous approximation and Hermite interpolation of a vector valued function and its partial derivatives*, Proceedings of Advances in Scientific Computing and Mathematical Modeling, Edited by S. K. Dey and J. Ziebarth, 63-70, 1994.
13. G. S. Alijani, F. Jafari and C. Wen-Shi, *Schedulability: Real time Tasks scheduling in a multiprocessor system*, Proceedings of 23rd International Conference on Parallel Processing, Edited by J. Chandra, Vol. III, 79-82, 1994.

**Non-Refereed Proceedings/Transactions/Book Chapters:**

1. S. Mueller, F. Jafari, and D. Roth, *Improving the dependability and precision of artificial DNA for information-theoretic purposes*, DOI 10.12140/RG.2.1.1215.8325, 2016.
2. F. Jafari, T. Tonev, E. Toneva and K. Yale, *Holomorphic flows, cocycles and coboundaries*, Proceedings of the Third Big Sky Conference in Analysis, Edited by K. Stroethoff and K. Yale, Missoula, MT, Chapter 6, pages 40-60, 1996.
3. D. Betebenner and F. Jafari, *Hypercyclic and strongly hypercyclic operators*, Proceedings of the Third Big Sky Conference in Analysis, Edited by K. Stroethoff and K. Yale, Missoula, MT, Chapter 2, pages 10-16, 1996.
4. F. Jafari and K. Yale, *Cocycles, coboundaries and spectra of composition operators*, Proceedings of Second Big Sky Conference in Analysis, Edited by R. Acar, Chapter 4, pages 1-8, 1995.
5. F. Jafari, *Subnormality, bounded point evaluations and approximation by polynomials*, Proceedings of the First Big Sky Analysis Conference, Edited by R. Acar, Chapter 4, pages 1-11, 1994.