

CURRICULUM VITAE

Tien-Yien Li

University Distinguished Professor Department of Mathematics

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Personal Data

B.S. National Tsing Hua University, Taiwan, June 1968
Ph.D. University of Maryland, August 1974

Experience in Higher Education

1974 - 1976	Instructor	University of Utah
1976 - 1978	Assistant Professor	Michigan State University
1978 - 1979	Visiting Associate Professor	Mathematics Research Center University of Wisconsin
1979 - 1983	Associate Professor	Michigan State University
1983 - present	Professor	Michigan State University
1987 - 1988	Invited Guest Professor	Research Institute for Mathematical Sciences, Kyoto University, Japan
1993 (Fall)	Visiting Professor	Centre de Recerca Matemàtica, Barcelona, Spain
1998 (Fall)	Visiting Professor	Mathematical Sciences Research Institute, Berkeley, California
2000 (Fall)	Visiting Professor	City Univ. of Hong Kong, Hong Kong, China
2009 (Fall)	Visiting Professor	Fields Institute, University of Toronto, Canada
1998 -	University Distinguished Professor	Michigan State University

Honors

Guggenheim Fellow 1995 - 1996
Distinguished Faculty Award 1995, Michigan State University
J. S. Frame Award for Excellence in Teaching 1996, Michigan State University
University Distinguished Professor 1998 - , Michigan State University

Distinguished Alumni Award 2002, College of Natural Sciences, National Tsing Hua University, Taiwan

Outstanding Academic Advisor 2006, College of Natural Science, Michigan State University

Honorary Chair Professor 2006 - 2008, National Tsing Hua University, Taiwan

Outstanding Alumni Award 2012, National Tsing Hua University, Taiwan

Honorary Guest Professor, Tsing Hua University (Beijing), Jilin University (China)

Professional Organizations

American Mathematical Society

Society for Industrial and Applied Mathematics

Invited Conference and Colloquium Talks:

- 11/26/84, Operations Research Society of America Meeting, Dallas, Texas
- 11/26/84, Southern Methodist University, Dallas, Texas
- 11/28/84, Rice University, Houston, Texas
- 4/26/85, University of Alabama, University, Alabama
- 4/30/85, University of North Carolina at Charlotte Charlotte, North Carolina
- 6/6/85, AIT-CNNAA Joint Differential Equation Seminar, Taiwan
- 6/11/85 Invited touring lectures at 12 institutions in the People's
- -7/22/85, Republic of China
- 2/6/86, University of Chicago, Chicago, Illinois
- 2/7/86, Fermi Lab., Chicago, Illinois
- 2/25/86, North Carolina State University, Raleigh, North Carolina
- 2/28/86, George Mason University, Fairfax, Virginia
- 3/6/86, University of Maryland, College Park, Maryland
- 4/7/86, Ohio University, Athens, Ohio
- 4/14/86, Operations Research Society of America Meeting, Los Angeles, California
- 4/15/86, University of California, San Diego, California
- 8/12/86, ISFE 24 (International Symposium on Functional Equations 24), Mount Holyoke College, South Hadley, Massachusetts
- 10/1/86, University of Michigan, Ann Arbor, Michigan
- 10/8/86, University of Utah, Salt Lake City, Utah
- 10/11/86, AMS 828th meeting, Logan, Utah
- 11/1/86, AMS 830th meeting, Denton, Texas
- 2/5/87, Central Michigan University, Mt. Pleasant, Michigan
- 7/12/87 Invited by the State Commission of Education of China

- 8/16/87, to give a series of lectures in the 4th Program of the Summer School for the Postgraduate of Mathematics, Jilin University, China
- 10/3/87, Japan Mathematical Society 1987 Annual meeting Kyoto, Japan
- 1/1/88 Invited by a number of universities in Japan to give colloquium talks. The list of the universities includes University of Tokyo, Kyoto University, University of Tsakuba, Kyushu University, Osaka University, Nagoya University, Kobe University, Ehie University, and Mie University
- 6/30/88,
- 8/30/88, The 13th International Symposium on Mathematical Programming, Tokyo, Japan
- 11/17/88, Adrian College, Adrian, Michigan
- 12/14/88, University of Maryland, College Park, Maryland
- 12/19/88, Courant Institute of Mathematical Science, New York University, New York, New York
- 1/17/89, Argonne National Laboratory, Argonne, Illinois
- 1/29/90, Clemson University, Clemson, South Carolina
- 1/30/90, North Carolina State University, Raleigh, North Carolina
- 2/1/90, George Mason University, Fairfax, Virginia
- 2/8/90, University of Maryland, College Park, Maryland
- 4/2/90, Copper Mountain Conference on Iterative Methods, Copper Mountain, Colorado
- 5/8/90, Operations Research Society of America National Meeting, Las Vegas, Nevada
- 5/17/90, Interface 90's, Kellogg Center, E. Lansing, Michigan
- 5/23/90, Nonlinear Science: The Next Decade, Los Alamos, New Mexico
- 6/17/90 Third Czechoslovak Summer School on Dynamical Systems, Stará Turá, Czechoslovakia
- 6/23/90,
- 1/9/91, University of Toledo, Toledo, Ohio
- 5/22/91 Invited by Nankai Institute of Mathematics, Tianjin, China to give a series of lectures for the Program in Dynamical System, along with colloquium talks at several institutions. The list of the institutions includes Peking University, Tsing Hua University, Fuzhou University and the Institute of Systems Sciences, Academia Sinica
- 6/11/91,
- 10/11/91, Western Michigan University, Kalamazoo, Michigan
- 2/13/92, IMA University of Minnesota, Minneapolis, Minnesota
- 7/16/92 International Workshop on Mathematics
- 7/18/92, Mechanization, Beijing, China

- 8/19/92 World Congress of Nonlinear Analysts, Melbourne,
-8/26/92, Florida
- 12/3/92, Central Michigan University, Mt. Pleasant, Michigan
- 7/5/93 International Workshop on Linear & Nonlinear
-7/9/93, Iterative Method, Matsuyama, Japan
- 10/4/93 International Workshop on Continuous Algorithms
-10/6/93, and Complexity, Barcelona, Spain
- 5/11/94, Instituto De Matematica Pura E Aplicada, Rio de Janeiro,
Brazil
- 6/12/94 AMS 1994 Summer Research Conference, Mount Holyoke
-6/16/94, College, South Hadley, Massachusetts
- 11/9/94, IBM Watson Research Center, York Town Heights, New York
- 3/7/95, University of Southern Mississippi, Hattisburg, Mississippi
- 3/10/95 West Florida University, Pensacola, Florida
- 3/29/95, The 26th Annual Iranian Mathematics Conference, Kerman, IRAN
- 8/1/95, The 25th AMS-SIAM Summer Seminar in Applied Mathematics,
Park City, Utah
- 11/6/95, Seminar on Real Computation and Complexity,
Schloß Dagstuhl, Germany
- 11/14/95, International Workshop on System of Algebraic Equations,
CIRM Marseilles, France
- 5/7/96, Katholieke Universiteit Leuven, Leuven, Belgium
- 6/17/96, '96 Beijing Dynamical Systems Conference, Beijing, China
- 6/19/96, Tsing Hua University, Beijing, China
- 6/26/96, Peking University, Beijing, China
- 7/26/96, Academia Sinica, Taipei, Taiwan
- 1/11/97, Foundations of Computational Mathematics Conference,
Rio de Janeiro, Brazil
- 3/7/97, Stanford University, Stanford, California
- 3/10/97, Caltech, Pasadena, California
- 3/11/97, UCLA, Los Angels, California
- 4/10/97, University of Maryland, College Park, Maryland
- 4/11/97, George Mason University, Fairfax, Virginia
- 7/16/97, Institute of System Sciences, Academia Sinica, Beijing, China
- 8/12/97, Peking University, Beijing, China
- 12/12/97, University of Central Arkansas, Conway, Arkansas
- 4/4/98, AMS 933rd Meeting, Philadelphia, Pennsylvania
- 8/17/98 Delivered 4 talks in Introductory Workshop on Foundation of
-8/26/98, Computational Mathematics and Symbolic Computation in
Geometry and Analysis, MSRI, Berkeley, California
- 9/15/98, Workshop on Solving Systems of Equations, MSRI, Berkeley, California
- 3/31/99, University of Notre Dame, Notre Dame, Indiana

- 8/2/99, Foundation of Computational Mathematics Conference, Oxford, England
- 1/10/00 Distinguished Lecture Series(3 talks), National Tsing-Hua University,
-1/12/00, Taiwan
- 2/14/00 Lecture series (4 hrs talks), Caltech, Pasadena, California
-2/18/00
- 7/5/00, Tokyo Institute of Technology, Tokyo, Japan
- 7/17/00, International Conference on Foundation of Computational Mathematics
in honor of Professor Steve Smale's 70th Birthday, Hong Kong
- 10/9/00, International Workshop on Chaos & Nonlinear Dynamics, Asuka, Japan
- 10/27/00, Sino-Japan Joint Optimization Meeting, Hong Kong
- 1/4/01, Pacific Rim Conference on Mathematics, Taipei, Taiwan
- 1/8/01, National Taiwan University, Taipei, Taiwan
- 4/28/01, Tsing Hua University, Beijing, China
- 10/26/01, University of Michigan, Ann Arbor, Michigan
- 12/21/01, ICCM 2001, Taipei, Taiwan
- 4/30/02, Tamkang University, Taipei, Taiwan
- 5/1/02, National Tsing Hua University, Taiwan
- 5/20/02, CBMS "Solving Polynomial System", Texas A&M University,
College Station, Texas
- 8/14/02, Foundation of Computational Mathematics Conference,
University of Minnesota, Minneapolis, Minnesota
- 4/24/03, University of Kentucky, Lexington, Kentucky
- 5/13/03, Center for Advanced Study, Oslo, Norway
- 8/18/03, "Shub Fest" (in honor of Professor Mike Shub's 60th birthday),
University of California, Berkeley
- 10/15/03, University of Illinois at Chicago Circle, Chicago, Illinois
- 11/18/03, University of Notre Dame, Notre Dame, Indiana
- 10/23/04, AMS meeting #1001, Evanston, Illinois
- 3/4/05, University of Missouri, Kansas City, Missouri
- 3/9/05, University of Southern Mississippi, Hattisburg, Mississippi
- 3/10/05, University of Southern Alabama, Mobile, Alabama
- 3/11/05, West Florida University, Pensacola, Florida
- 4/7/05, Brigham Young University, Provo, Utah
- 8/9/05, Workshop on Geometry and Symmetry in Numerical Computation,
Colorado State University, Fort Collins, Colorado
- 10/10/05, Midwest Algebra, Geometry and their Interactions Conference
(MAGIC 05), University of Notre Dame, Notre Dame, Indiana
- 12/5/05 Lecture Series(8 talks), National Center for Theoretical Sciences,
-12/26/05, National Tsing-Hua University, Taiwan
- 12/22/05 National University of Kaohsiung, Kaohsiung, Taiwan
- 4/3/06, Georgia Tech, Atlanta, Georgia
- 4/8/06, AMS meeting #1016, Notre Dame, Indiana

- 6/5/06, The International Conference on Nonlinear and Stochastic Dynamics, Chengdu, China
- 6/12/06, East China Normal University, Shanghai, China
- 9/21/06, Algorithms in Algebraic Geometry Workshop, IMA, University of Minnesota, Minneapolis, Minnesota
- 2/16/07, Texas A&M University, College Station, Texas
- 4/20/07, Workshop on Advances in Optimization, Tokyo, Japan
- 7/31/07, Hunan Normal University, Changsha, Hunan, China
- 8/6/07, Lecture Series (8 talks), Dalian University of Technology, Dalian, China
- -8/22/07, Dalian, China
- 8/29/07, National Tsing-Hua University, Hsinchu, Taiwan
- 8/30/07, Academia Sinica, Taipei, Taiwan
- 10/6/07, AMS meeting #1030, DePaul University, Chicago, Illinois
- 11/7/07, University of Toronto, Toronto, Ontario, Canada
- 5/23/08, Interactions of Classical & Numerical Algebraic Geometry, Notre Dame, Indiana
- 8/26/08, National Tsing-Hua University, Hsinchu, Taiwan
- 8/29/08, The 4th Sino-Japanese Joint Optimization Meeting, Tainan, Taiwan
- 3/13/09, Purdue University, West Lafayette, Indiana
- 5/12/09, Interdisciplinary Conference on Applied Analysis and Mathematics, Hsinchu, Taiwan
- 9/29/09, Fields Institute, University of Toronto, Toronto, Ontario, Canada
- 10/9/09, Maplesoft, Waterloo, Ontario, Canada
- 3/1/10, Workshop on Randomization, Relaxation, and Complexity ; Banff International Research Station, Alberta, Canada
- 3/9/10, Brigham Young University, Provo, Utah
- 6/3/10, Workshop on Interdisciplinary Applied and Computational Mathematics, Zhejiang University, Hangzhou, Zhejiang, China
- 6/10/10, Northeast University, Shenyang, China
- 6/12/10, The 7th International Conference on Scientific Computing and Applications, Dalian University of Technology, Dalian, China
- 6/23/10, National Tsing-Hua University, Hsinchu, Taiwan
- 6/28/10, The 2rd CREST-SBM International Conference “Harmony of Gröbner Bases and Modern Industrial Society”, Osaka, Japan
- 7/6/10, Tokyo Institute of Technology, Tokyo, Japan
- 8/3/10, University of Maryland, College Park, Maryland
- 11/6/10, AMS meeting #1064, Notre Dame University, Notre Dame, Indiana
- 11/20/10, MAA Florida Chapter local meeting, Pensacola, Florida
- 5/26/11, National Sun Yat-Sen University, Kaohsiung, Taiwan
- 6/1/11, Lecture Series (12 talks), Baptist University, Hong Kong, China
- -6/15/11, Baptist University, Hong Kong, China
- 10/25/11, University of Michigan, Ann Arbor, Michigan

- 11/16/11, University of Maryland, College Park, Maryland
- 11/18/11, Florida International University, Miami, Florida
- 4/30/12 , (3 talks) National Tsing Hua University, Hsinchu, Taiwan
- - 5/2/12,
- 6/29/12, 5th Shanghai International Symposium on Nonlinear Sciences and Applications, Fudan University, China
- 7/5/12, Tsing Hua University, Beijing, China
- 7/9,10/12, (3 talks) Darlian University of Technology, Darlian, China
- 8/2/12, University of Maryland, College Park, Maryland
- 6/21/13, 2nd International Conference on Interdisciplinary Applied Mathematics and Computational Mathematics, Hangzhou, China.
- 6/24/13, Institute of Systems Science, Academy of Mathematics and System Science Chinese Academy of Sciences, Beijing, China
- 6/28/13, Institute of Computation, Academy of Mathematics and System Sciences Chinese Academy of Sciences, Beijing, China
- 7/11/13, Beihang University, Beijing, China
- 8/1/13, Institute of Mathematics, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China
- 1/10/14, 7th “Andrzej Lasota” Lecture, Silesian University of Katowice, Poland
- 10/30/14, Institute of Systems Science, Academy of Mathematics and System Science Chinese Academy of Sciences, Beijing, China
- 11/1/14, The 6th Conference of Computer Math (CM2014), Chongqing, China
- 11/3/14, Chongqing University, Chongqing, China
- 11/6/14, Darlian University of Technology, Darlian, China

Theses Directed

Moody Chu, Ph.D., 1982

Dissertation: A nonlinear multistep method for solving stiff initial value problems

Mahmoud Mohseni, Ph.D., 1984

Dissertation: Homotopy continuation method for nonlinear equations

Henry Gee, Ph.D., 1985

Dissertation: A model for the correction of the geometric distortion of multispectral scanner data

Noah Rhee, Ph.D., 1987

Dissertation: The homotopy method for the symmetric eigenvalue problems

Hong Zhang Sun, Ph.D., 1989

Dissertation: On the Galerkin method with vector basis functions

Jiu Ding, Ph.D., 1990

Dissertation: Finite approximations of the Frobenius-Perron operator

Xiaoshen Wang, Ph.D., 1990

- Dissertation: Homotopy methods for solving deficient polynomial systems
 Kuiyuan Li, Ph.D., 1991
 Dissertation: Homotopy methods and algorithms for real symmetric eigenproblems
 Zhonggang Zeng, Ph.D., 1991
 Dissertation: Homotopy-determinant method for matrix eigenvalue problems and its parallelization
 Liang Jiao Huang, Ph.D., 1992
 Dissertation: Parallel homotopy algorithm for large sparse symmetric eigenproblems
 Ming Jin, Ph.D., 1995
 Dissertation: Quasi-Laguerre iteration and its application in solving symmetric tridiagonal eigenvalue problems
- Xiulin Zou, Ph.D., 1995
 Dissertation: Quasi-Laguerre's method and its parallel implementation in solving symmetric tridiagonal eigenvalue problems
- Xiaozhuo Yang, Ph.D., 1996
 Dissertation: A scalable algorithm for non-symmetric eigenvalue problems
- Yingjie Zhang, Ph.D., 1996
 Dissertation: Hausdorff dimension of invariant sets for expanding and hyperbolic systems
- Qingchuan Yao, Ph.D., 1998
 Dissertation: Convergence of several iterative methods
- Hwee Hoon Chung, Ph.D., 1998
 Dissertation: Polyhedral homotopy and its applications to polynomial system solving
- Tangan Gao, Ph.D., 1999
 Dissertation: Finding all isolated roots of polynomial systems in C^n via stable mixed volume
- Tianjun Wang, Ph.D., 1999
 Dissertation: Determining the Jordan normal form of a matrix
- Xing Li, Ph.D., 2000
 Dissertaion: Solving polynomial systems in C^n by polyhedral homotopies
- Mengnien Wu, Ph.D., 2000
 Dissertation: Balancing lifting values to improve numerical stability of polyhedral homotopy methods
- Tsung-Lin Lee, Ph.D., 2007
 Dissertation: A rank-revealing method for low rank matrices with updating, downdating, and applications

Chih-Hsiung Tsai, Ph.D., 2008

Dissertation: Algorithms for solving polynomial systems by homotopy continuation method,
and its parallelization

Ying Zhang, Ph.D., 2008

Dissertation: Total degree and mixed volume

Tianran Chen, Ph.D., 2012

Dissertation: Projective path tracking for homotopy continuation method

Liangmin Zhou, Ph.D., 2015

Dissertation: Computing tensor eigenpairs using homotopy methods

Liping Chen, Ph.D., 2016

Dissertation: A linear homotopy method for computing generalized tensor eigenpairs

Research Grant Awards:

NSF MPS 74-24310	Qualitative behavior for generalized dynamical processes (7/1/75 – 12/31/76)
NSF MCS 76-24432	Chaotic behavior of dynamical systems (7/1/76 – 12/31/78)
NSF MCS 78-18221	Generalized dynamical processes (7/15/78 – 11/30/80)
NSF MCS 80-02994	Numerical solutions of systems of nonlinear equations (7/1/80 – 12/31/82)
NSF MCS 83-01408	Numerical solutions of nonlinear equations by the continuation method – (7/1/83 – 12/31/85)
NSF DMS 84-16503	Statistical stability of dynamical system (7/1/85 – 12/31/87)
NSF DMS 87-01349	Numerical solutions of polynomial systems (8/1/87 – 1/31/90)
NSF DMS 89-02663	Homotopy continuation methods for deficient polynomial systems – (7/1/89 – 12/31/91)
NSF CCR 90-24840	A continuation approach to eigenvalue problems (8/1/91 – 1/31/95)
NSF DMS 95-04953	Homotopy algorithms for solving sparse polynomial systems – (7/15/95 – 6/30/98)
NSF DMS 98-04846	Solving sparse polynomial systems by polyhedral homotopies – (7/15/98 – 6/30/01)
NSF DMS 01-04009	Solving polynomial systems by polyhedral homotopies (8/1/01 – 7/31/04)
NSF DMS 04-11165	Solving polynomial systems by polyhedral homotopies (10/1/04 – 9/30/07)
NSF DMS 08-11172	Solving polynomial systems by polyhedral homotopies (7/1/08 – 6/30/11)
NSF DMS 11-15587	Solving polynomial systems by polyhedral homotopies (9/1/11 – 8/31/14)

Publication

- “Existence of solutions for ordinary differential equation in Banach spaces,” *J. Differential Equations*, Vol. 18, (1975), No. 1, pp. 29-40.
- “Bounds for the periods of periodic solutions of differential delay equations,” *J. Math. Anal. Appl.*, Vol. 49, (1975), pp. 124-129.
- “Period three implies chaos” (with J.A. Yorke), *Amer. Math. Monthly*, Vol. 82, (1975), No. 10, pp. 985-992.
- “The simplest dynamical system” (with J.A. Yorke), *Dynamical Systems*, Academic Press, New York (1976), pp. 203-206.
- “Finite approximation for the Frobenius-Perron operator — A solution to Ulam’s conjecture,” *J. Approximation Theory*, 17 (1976), pp. 177-186.
- “A constructive proof of the Brouwer fixed point theorem and computational results” (with R. B. Kellogg and J.A. Yorke), *SIAM J. Numer. Anal.*, 13 (1976), pp. 473-483.
- “The numerical solution of Hilbert problem” (with Y. Ikebe and F. Stenger), *Theory of Approximation with Applications*, Academic Press, New York (1976), pp. 338-358.
- “Computing the Brouwer fixed point by following the continuation curve,” *Fixed Point Theory and Its Applications*, Academic Press, New York (1976), pp. 131-135.
- “A method of continuation for calculating a Brouwer fixed point” (with R. B. Kellogg and J.A. Yorke), *Fixed points, algorithms and applications*, S. Kararmardien ed., Academic Press, New York (1977), pp. 133-147.
- “Ergodic transformations from an interval into itself,” *Trans. Amer. Math. Soc.*, Vol. 235 (1978), pp. 183-192.
- “Ergodic maps on $[0, 1]$ and nonlinear pseudo-random number generators” (with J.A. Yorke), *J. of Nonlinear Analysis*, Vol. 2, No. 4 (1978), pp. 473-481.
- “The generalized Boole’s transformation is ergodic” (with F. Schweiger), *Manuscripta Mathematica*, 25 (1978), pp. 161-167.
- “The elliptic porous slider — A homotopy method” (with L. Watson and C.Y. Wang), *J. of Applied Mechanics*, Vol. 45, No. 2 (1978), pp. 435-436.

- “Path following approaches for solving nonlinear equations: homotopy, continuous Newton and projection” (with J.A. Yorke), *Functional differential equations and approximation of fixed points*, (1978) pp. 257-261.
- “On the number of solutions to polynomial systems of equations” (with C.B. Garcia), *SIAM J. Numer. Anal.*, Vol. 17 (1980), pp. 540-546.
- “A simple reliable numerical algorithm for following homotopy paths” (with J.A. Yorke), *Analysis and Computation of Fixed Points*, Academic Press (1980), pp. 73-91.
- “On a path following method for systems of equations” (with C.B. Garcia), *Bull. Inst. Math. Acad. Sinica*, Vol. 9, No. 2 (1981), pp. 249-259.
- “Odd chaos” (with M. Misiurewicz, G. Pianigiani and J.A. Yorke), *Physics Letter A*, vol. 87A, No. 6 (1982), pp. 271-273.
- “No division implies chaos” (with M. Misiurewicz, G. Pianigiani and J.A. Yorke), *Trans. Amer. Math. Soc.*, Vol. 273 (1982), pp. 191-199.
- “Piecewise smooth continuation” (with J.C. Alexander and J.A. Yorke), *Homotopy methods and global convergence*, Plenum Pub. Co. (1983), pp. 1-14.
- “Iterating piecewise expanding maps: Asymptotic dynamics of probability densities” (with J.A. Yorke).
- “On locating all the zeros of an analytic function within a bounded domain by a revised Relves/Lyness method,” *SIAM J. Numer. Anal.*, Vol. 20, No. 4 (1983), pp. 865-871.
- “On Chow, Mallet-Paret and Yorke homotopy for solving system of polynomials,” *Bull. Inst. Math. Acad. Sinica*, Vol. 11, No. 3, (1983), pp. 433-437.
- “Asymptotic periodicity of the iterates of Markov operators,” *Trans. Amer. Math. Soc.*, Vol. 186, No. 2 (1984), pp. 751-764.
- “Regularity results for real analytic homotopies” (with J. Mallet-Paret and J.A. Yorke), *Numer. Math.*, 46, (1985), pp. 43-50.
- “Regularity results for solving systems of polynomials by homotopy method” (with T. Sauer), *Numer. Math.*, 50, (1987), pp. 283-289.
- “Numerical solution of a class of deficient polynomial systems” (with T. Sauer and J.A. Yorke), *SIAM J. Numer. Anal.*, Vol. 24, No. 2 (1987), pp. 435-451.
- “Homotopy method for generalized eigenvalue problems $Ax = \lambda Bx$ ” (with T. Sauer), *Linear Alg. Appl.*, Vol. 91 (1987), pp. 65-74.

- “Solving polynomial systems,” *Mathematical Intelligencer*, Vol. 9, No. 3 (1987), pp. 33-39.
- “The random product homotopy and deficient polynomial systems” (with T. Sauer and J.A. Yorke), *Numer. Math.*, 51, (1987), pp. 481-500.
- “Homotopy algorithm for symmetric eigenvalue problems” (with N. Rhee), *North-eastern Math. J.*, 3(4), (1987), pp. 379-383.
- “Homotopy method for general λ -matrix problems” (with M. Chu and T. Sauer), *SIAM J. Matrix Anal. and Appl.*, Vol. 9, No. 4 (1988), pp. 528-536.
- “Numerically determining solutions of systems of polynomial equations” (with T. Sauer and J.A. Yorke), *A.M.S. Bull.*, Vol. 18, No. 2 (1988), pp. 173-177.
- “Consequences of the Li-Yorke theorem on chaos,” (in Japanese) *Sugaku Seminar*, Vol. 27, No. 10 (1988), pp. 44-47.
- “Solving all the isolated zeros of polynomial systems,” (in Chinese) *Advances in Math.*, Vol. 17, No. 3 (1988), pp. 260-266.
- “The cheater’s homotopy: An efficient procedure for solving systems of polynomial equations” (with T. Sauer and J.A. Yorke), *SIAM J. Numer. Anal.*, Vol. 26, No. 5 (1989), pp. 1241-1251.
- “Homotopy algorithm for symmetric eigenvalue problems” (with N. Rhee), *Numer. Math.*, 55 (1989), pp. 265-280.
- “A simple homotopy for solving deficient polynomial systems” (with T. Sauer), *Japan J. Appl. Math.*, 6 (1989), pp. 409-419.
- “Entropy,” (in Chinese) *Advances in Math.*, Vol. 19, No. 3 (1990), pp. 301-320.
- “A homotopy for solving the kinematics of the most general six-and-five-degree of freedom manipulators” (with X. Wang), *Proc. of ASME Conference on Mechanisms*, D1 - Vol.25 (1990), pp. 249-252.
- “An algorithm based on weighted logarithmic barrier functions for linear complementarity problems” (with Jiu Ding), *Arabian J. Sci. Eng.*, Vol. 15, No. 4B (1990), pp. 679-685.
- “A polynomial-time predictor-corrector algorithm for linear complementarity problem” (with Jiu Ding), *SIAM J. Optimization*, Vol.1, No.1 (1991), pp. 83-92.
- “Parallel homotopy algorithm for symmetric tridiagonal eigenvalue problem” (with H. Zhang and X.H. Sun), *SIAM J. Sci. Stat. Comput.*, Vol. 12, No. 3 (1991), pp. 469-487.

- “Solving deficient polynomial systems with homotopies which keep the sub-schemes at infinity invariant” (with X. Wang), *Math. Comp.*, Vol. 56, No. 194 (1991), pp. 693-710.
- “Markov finite approximation of Frobenius-Perron operator” (with J. Ding), *J. Nonlinear Anal., Theory, Methods & Applications*, Vol. 17, No. 8 (1991), pp. 759-772.
- “Solving eigenvalue problems of real nonsymmetric matrices with real homotopies” (with Z. Zeng and L. Cong), *SIAM J. Numer. Anal.*, Vol. 29, No. 1 (1992), pp. 229-248.
- “Nonlinear homotopies for solving deficient polynomial system with parameters” (with X. Wang), *SIAM J. Numer. Anal.*, Vol. 29, No. 4 (1992), pp. 1104-1118.
- “Error estimates of the Markov finite approximation of the Frobenius-Perron operator” (with C. Chiu and Q. Du), *J. Nonlinear Anal., Theory, Methods & Applications*, Vol. 19, No. 4 (1992), pp. 291-308.
- “Homotopy-determinant algorithm for solving nonsymmetric eigenvalue problems” (with Z. Zeng), *Math. Comp.*, Vol. 59, No. 200 (1992), pp. 483-502.
- “Projection solutions of Frobenius-Perron Operator Equations” (with Jiu Ding), *International J. of Math. & Math. Sci.*, Vol. 16, No. 3 (1993), pp. 465-484.
- “An algorithm for symmetric tridiagonal eigen-problems - divide and conquer with homotopy continuation” (with K. Li), *SIAM J. Sci. Comput.*, Vol. 14, No. 3 (1993), pp. 735-751.
- “A homotopy algorithm for a symmetric generalized eigenproblem” (with K. Li), *Numerical Algorithm*, 4 (1993), pp. 167-195.
- “Solving real polynomial systems with real homotopies” (with X. Wang), *Math Comp.*, Vol. 60, No. 202 (1993), pp. 669-680.
- “High order approximation of the Frobenius-Perron operator” (with J. Ding and Q. Du), *Appl. Math. Comput.*, 53 (1993), pp. 157-171.
- “Entropy - An introduction” (with J. Ding), *Nankai Ser. Pure, Appl. Math. Theoret. Phys.*, 4, World Sci. Publishing, River Edge, NJ, (1993), pp. 26-54.
- “Solving polynomial systems by homotopy continuation methods”, *Computer Mathematics, Nankai Ser. Pure, Appl. Math, Theoret. Phys.*, 5, World Sci. Publishing, River Edge, NJ, (1993), pp. 18-35.

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