

# Curriculum Vitae

*Stephen Shing-Toung Yau*

e-mail: [yau@tsinghua.edu.cn](mailto:yau@tsinghua.edu.cn)  
[yau@uic.edu](mailto:yau@uic.edu)

August 20, 2019

## Education

- Ph.D (1976), The State University of New York at Stony Brook
- M.A. (1974), The State University of New York at Stony Brook

## Positions

- Honorary Professor, Department of Mathematics, the University of Hong Kong (2018-)
- Professor, Department of Mathematical Science, Tsinghua University (2011-)
- Emeritus Distinguished Professor, University of Illinois at Chicago (2011-)
- Distinguished Professor, University of Illinois at Chicago (2005-2011)
- Professor, Department of Mathematics, Statistics and Computer Science, University of Illinois at Chicago (1984-2005)
- Professor, Department of Electrical and Computer Engineering, University of Illinois at Chicago (2002-2011)
- Director, Laboratory of Control and Information (1993-2011)
- Director, Institute of Mathematics, East China Normal University (2002-2011)
- Zi-Jiang Professor, East China Normal University (2002-2011)
- Visiting Professor, Harvard University (Winter 1999)
- Visiting Professor, University of Pisa, Italy (Spring 1990)
- Visiting Professor, Johns Hopkins University (1989 - 90)
- University Scholar, University of Illinois at Chicago (1987 -90)
- Visiting Professor, Institute Mittag-Leffler, Sweden (Winter 1987)
- Visiting Professor, Yale University (1984-85)
- Visiting Associate Professor, University of Southern California (1983-84)
- Member, The Institute for Advanced Study (1981-82)
- Visiting Research Mathematician, Princeton University (Spring 1981)
- Associate Professor, University of Illinois at Chicago (1980-84)
- Benjamin Pierce Assistant Professor, Harvard University (1977-80)

- Member, The Institute for Advanced Study (1976-77)

### Prizes and Awards

- the 8th International Congress of Chinese Mathematicians, the Chern Prize of Lifetime Achievement in Mathematics, 2019
- American Mathematical Society Fellow 2013
- University Distinguished Professor, University of Illinois at Chicago 2005
- IEEE Fellow 2003
- Guggenheim Fellowship, 2000
- University Scholar, University of Illinois at Chicago (1987-90)
- Alfred P. Sloan Research Fellowship (1980-82)
- Biographical note in American Men And Women of Science
- Biographical note in Who's Who in America
- Biographical note in Who's Who in Science and Engineering
- Biographical note in Who's Who in the Midwest
- Biographical note in Who's Who in American Education
- Biographical note in Who's Who among Asian Americans
- Biographical note in Who's Who in Sciences Higher Education

### Membership

- Fellow of the Institute of Electrical and Electronic Engineers
- Member of Society for Industrial and Applied Mathematics
- Member of American Mathematical Society

### Grants

- National Natural Science Foundation of China(2013-2016, 2015-2018, 2016-2020, 2018-2020)
- Army Research Office of USA (1989-2005)
- National Science Foundation of USA (1976-88, 1989-2003, 2005-2011, 2011-2015)
- National Science Foundation Special Year Grant of USA (1987-88)
- National Security Agency of USA (2002-2005, 2005-2007)
- Research Board, University of Illinois at Chicago (1987, 1984, 1983, 1981)
- The Clark and the Topier Fund, Harvard University (1977-80)

### Honors

- Open Invitation to spend 1984-86 as a Research Professor at Sonderforschungsbereich "Theoretische Mathematic", University of Bonn, Germany
- Invited one-hour address at the AMS Meeting, Worcester, Massachusetts, April 1985
- Invited one-hour address at the Swedish Mathematical Society Meeting, Linkoping, January 1987
- Invited to visit one week and give a colloquium lecture at Aarhus University, Denmark, February 1987
- Invitation to spend a month at Fudan University, Shanghai, People's Republic of China to give a series of lectures, November and December 1987
- Invitation to spend one week at the Institute of Mathematics, Academia Sinica, Beijing, People's Republic of China to give several lectures, December 1987
- Invitation to spend eight weeks at the University of Pisa, Italy to give a series of lectures, January - February 1990

- Invitation to spend 9 days at Global Analysis Research Center, Seoul National University, Korea to give a series of lectures, February 1992
- Invitation to spend one month at Nanjing University, People's Republic of China to give a series of lectures, May 1993
- Invitation to spend one month at National Taiwan University to give a series of lectures, May 1994
- C.M. Cha Fellow from Hong Kong Baptist University, Hong Kong, May-July, 1995
- Invitation to spend two months at Hong Kong Baptist University to give a series of lectures, Hong Kong, May-July, 1997
- Invitation to spend two months as Visiting Professor at the University of Science and Technology of Hong Kong to give a series of lectures, Hong Kong, China, 1997.
- Invitation to give 5 two-hours Distinguished Lecture Series on Control Theory, Special Year on Control Theory, October 1997, Morningside Institute, Academia Sinica, China.
- Invitation to spend two months as Visiting Professor at the Chinese University of Hong Kong to give a series of lectures, Hong Kong, China, 1998.
- Invited 45 minutes speaker at International Congress of Chinese Mathematicians, Beijing, China, December 1998.
- Zi-Jiang Professor, East China Normal University, China, May-June, 2002-2003.
- Director of Institute of Mathematics, East China Normal University, China (2002-2011).
- Invited 45 minutes speaker at International Congress of Chinese Mathematicians, Hong Kong, China, December, 2004.
- Invited 45 minutes speaker at International Congress of Chinese Mathematicians, Hangzhou, China, December, 2007.
- Invited Distinguished lecture at Centennial Expert's Forum of Lanzhou University, Lanzhou, China, May, 2010.
- Invited 45 minutes speaker at International Congress of Chinese Mathematicians, Beijing, China, December, 2010.
- Visiting Distinguished Professor in the Center for Advanced Studies, Warsaw University of Technology, Poland, May-June, 2011.
- Invitation to visit East China Normal University to give a colloquium talk, Shanghai, China, May, 2011.
- Invitation to visit Nanchang University to give a colloquium talk, Nanchang, China, May, 2011.
- Invited one-hour speaker in the workshop on Complex Analysis and Complex Geometry, Wuhan University, China, June, 2011.
- Invitation to spend two and half months as Visiting Professor at the University of Science and Technology of Hong Kong to give a lecture and conduct research project, Hong Kong, China, June-August, 2011.
- Invitation to visit Australia National University to give a colloquium talk, Australia, Oct. 2011.
- Colloquium talk at the Institute of Mathematics, Chinese Academy of Science, Beijing, China, Mar. 2012.
- Colloquium talk at the Institute of Mathematics, Chinese Academy of Science, Taipei. Mar. 2012.
- Invited speaker, Mini-workshop of Algebra, Taida Institute of Mathematical Science, National Taiwan University, Taipei, Mar. 2012.
- Invited speaker, East Asia Mini-Workshop on CR Geometry, Institute of Mathematics, Chinese Academy of Science, Taipei, Mar. 2012.
- Invitation to visit Harbin Engineering University to give a colloquium talk, Harbin, China, August 2012.

- Invited one-hour speaker at the 2013 Chinese-Norwegian Mathematics Conference, Trondheim, Norway, June, 2013
- Invited one-hour speaker at the 2013 Abel Symposium sponsored by the Norwegian Mathematical Society, Trondheim, Norway, July 2-5, 2013.
- Invited one-hour plenary speaker at International Congress of Chinese Mathematicians, Taipei, July, 2013.
- Plenary talk at 2013 Annual Conference of Chinese Several Complex Variables, Xuzhou, China, August, 2013.
- Plenary Lecture at The Hong Kong Mathematical Society Annual General Meeting, Hong Kong, China, June, 2014.
- Invitation to visit East China Normal University to give a colloquium talk, Shanghai, China, April, 2014.
- Invitation to visit Sun Yat-Shen University to give a colloquium talk, Guangzhou, China, April, 2014.
- One of Organizers, workshop at Third Conference of Tsinghua Sanya International Mathematics Forum, Sanya, Hainan, China, May, 2014.
- Invitation to visit Beihang University to give a colloquium talk, Beijing, China, May, 2014.
- Invitation to visit the Chinese University of Hong Kong to give a colloquium talk, Hong Kong, China, June, 2014.
- Invited colloquium Talk at Renmin University of China, Beijing, China, March 20th, 2015.
- Invitation to visit the Chinese University of Hong Kong to give a colloquium talk, Hong Kong, China, April 29th -May 5th, 2015.
- Invitation to visit the National Taiwan University to give a colloquium talk, Taipei, China, June 24th -July 1st, 2015.

### Ph.D Student Supervision

1. Yung Yu (1988)
2. Craig Seeley (1988)
3. Yi-Jing Xu(1990)
4. Wen-Lin Chiou (1991)
5. Chi-Wah Leung (1993)
6. Tan Jiang (1993)
7. Li-Xing Jia (1994)
8. Jie Chen (1994)
9. Amid Rasoulian (1995)
10. Hon-Wing Cheng (1996)
11. Qing-Long Zhang (1996)
12. Guo-Qing Hu (1997)
13. Zhi-Gang Liang (1998)
14. Ke-Pao Lin (1999)
15. Xi Wu (2000)
16. Zhe Li (2002)
17. Xue-Jun Wang (2002)
18. Shao-Bo Wang (2002)
19. Junfeng Ding (2005)
20. Changchuan Yin (2005)
21. Libin Liu (2005)
22. Dongchul Yoo (2005)
23. Jiuhong Tang (2005)
24. Dongmin Cai (2006)
25. Ling Zhou (2007)
26. Peng He (2007)
27. Chaoxiao Lu (2008)

28. Rong Du (2009)
29. Weitian Zang (2009)
30. Qian Liang (2010)
31. Bo Zhao (2010)
32. Chenglong Yu (2010)
33. Mo Deng (2011)
34. Fei Ye (2011)
35. Eb Armah (2011)
36. Yang Jiao (2012)
37. Huaiqing Zuo (2012)
38. Troy Antonio Hernandez (co-directed with Jie Yang) (2013)
39. Xue Luo (2013)
40. Hsin-Hsiung Bill Huang (co-directed with Jie Yang) (2014)
41. Hui Zheng (2015)
42. Tung Hoang (2017)
43. Kun Tian (2017)
44. Yongkun Li (2017)
45. Ji Shi (2018)
46. Xiuqiong Chen (2019)
47. Naveed Hussain (2019)

#### **High School Student Supervision**

- Letian Zhang, Intel Science Competition Final Forty list (2006), published two papers in SCI journals. One of them published on the top-class journal—Math. Res. Lett..
- Linda Zhao, Intel Science Competition Semi-Final list (2008), published two papers in SCI journal.

- Irene Chen, Intel Science Competition Semi-Final list, and Gold Medalist of Yau Worldwide High School Mathematics Research Project Competition (2009), published one paper in SCI journal.
- Victor Duan, Intel Science Competition Semi-Final list (2010), published one paper in Journal of Theoretical Biology.
- Sarvasva Raghuvanshi, Intel Science Competition Semi-Final list, and Silver Medalist of Yau Worldwide High School Mathematics Research Project Competition (2016), published one paper in Asian Journal of Mathematics.

#### **Selected Professional Activities**

- Managing Editor and Founder, Journal of Algebraic Geometry (1991-).
- Editors-in-Chief and Founder, Communications in Information and Systems (2000-).
- Editor, Pure and Applied Mathematical Quarterly (2018-).
- Guest Editor, Special issues of Science in China, Series A: Mathematics, 2006, 2010.
- Executive Committee, International Congress of Chinese Mathematicians, Beijing, China Dec. 2010.
- Program Committee, International Conference on Complex Analysis and Related topics, Beijing, China, August 2009.
- Guest Editor, Special issues of Asian Journal of Math., 2003, 2007, 2011, 2017.
- Scientific committee, International Congress of Chinese Mathematicians, Hangzhou, China, Dec. 2007.
- Coorganizer, AMS special session on Analysis and CR Geometry, De Paul University, Chicago, Oct. 2007.

- Scientific Committee, International Conference on Several Complex Variables, Beijing, China, July 2006.
- Organizer, International Conference on Several Complex Variables, University of Science and Technology, Hefei, China, June 2005.
- Scientific Committee Member, International Congress of Chinese Mathematicians, Hong Kong, December 2004.
- Organizer, International Conference on Complex Geometry and Related Topics, East China Normal University, Shanghai, China, June 2004.
- Coorganizer, AMS special session "iterated function systems and analysis on fractals", Evanston, Illinois, Oct. 23-24, 2004
- Organizer, NSF US-Hong Kong Conference on Recent Developments in Several Complex Variables, Cauchy Riemann Geometry and Complex Algebraic Geometry, Nov. 2003.
- Chair of the technical session of "Soft Computing II", IEEE International Symposium on Intelligent Control, Houston, TX, Oct. 2003.
- Chair of the technical session of "Robust and Nonlinear Filtering" at American Control Conference, Denver, CO, June 2003.
- International Advisory Committee of the Satellite Conference of ICM 2002 on Control and Optimization, Xi'an, China.
- Executive Committee, International Congress of Chinese Mathematicians, Taipei, Taiwan, December 2001.
- Organizing Committee of International Conference on Singularities and Applications, Beijing, July 2001.
- Organizing Committee Member, International Workshop on Complex Analysis and Geometry, Chinese University of Hong Kong, May 2000
- Chair of the technical session of "Nonlinear Control and Stabilization" at the IEEE CDC, Sydney, Australia, December 2000.
- Cochair of the technical session of "Estimation and Filtering" at American Control Conference, Chicago, IL, June 2000.
- Organizer, Minisymposium on CR Geometry, The Chinese University of Hong Kong, May, 1999
- Chair of the Technical Session at the IEEE Conference of Decision and Control, "Nonlinear Filtering II", San Diego, CA 1997, Tampa, FL, 1998
- Scientific Member, International Congress of Chinese Mathematicians, Beijing, December 1998.
- Organizer, International Workshop on CR Manifolds, The Chinese University of Hong Kong, May 1997
- General Chairman, IEEE International Conference on Control and Information, The Chinese University of Hong Kong, June 1995
- Coorganizer, International Conference on Singularities and Complex Geometry, Beijing, China, June 1994
- Coorganizer, Wavelets and Large-Scale Image Processing, Chicago, Oct. 1994
- Coorganizer, Wavelets and their applications in PDE, a minisymposium during SIAM Annual Meeting, San Diego, CA, July 25-29, 1994
- Organizer, Minisymposium on wavelets at the Third SIAM Conference on Linear Algebra in Signals, Systems and Control, University of Washington, Seattle, August 1993
- Organizer, Wavelets and its application at IEEE Regional Conference on Aerospace Control Systems, Rockwell Science Center, Thousand, CA, May 1993

- Co-organizer, Emerging Computational Advances in Systems and Control 31st IEEE Conference on Decision and Control, Tucson, Arizona, December 1992
  - Organizer, Midwest Algebraic Geometry Conference at the University of Illinois at Chicago, March 1988
  - Organizer, National Science Foundation Special Year Algebraic Cycles Conference at the University of Illinois at Chicago, March 1988
  - AMS Special Session Chairman on Singularities and Complex Geometry, Worcester, Massachusetts, April 1985
  - AMS Special Session Chairman on Differential Geometry of Submanifolds, Worcester, Massachusetts, April 1985
9. Normal two-dimensional elliptic singularities, *Trans. Amer. Math. Soc.*, Vol. 254 (1979), 117-134.
  10. On maximally elliptic singularities, *Trans. Amer. Math. Soc.*, Vol. 257 (1980), 269-329.
  11. Index theory for the boundaries of complex analytic varieties, *Proc. Nat. Acad. Sci. USA*, Vol. 77 (1980), 1248-1249.
  12. Deformations and equitopological deformations of strongly pseudoconvex manifolds, *Nagoya Math. J.*, Vol. 82 (1981), 113-129.
  13. Kohn-Rossi cohomology and its application to the complex Plateau problem I, *Ann. of Math.*, Vol. 113 (1981), 67-110.
  14. Sheaf cohomology on 1-convex manifolds, *Recent Developments in Several Complex Variables*, *Ann. of Math. Study*, Vol. 100 (1981), 429-452.

#### List of Publications

1. Two theorems on higher dimensional singularities, *Math. Ann.*, Vol. 231 (1977), 55-59.
2. On almost minimally elliptic singularities, *Bull. Amer. Math. Soc.*, Vol. 83 (1977), 362-364.
3. The signature of smoothing of higher dimensional singularities, *Bull. Amer. Math. Soc.*, Vol. 83 (1977), 1313-1315.
4. Normal singularities of surfaces, *Proceedings of Symposia in Pure Mathematics*, Vol. 32 (1978), 195-198.
5. The signature of Milnor Fibres and duality theorem for strongly pseudoconvex manifolds, *Invent. Math.*, Vol. 46 (1978), 81-97.
6. Hypersurface weighted dual graphs of normal singularities of surfaces, *Amer. J. Math.*, Vol. 101 (1979), 761-812.
7. Gorenstein singularities with geometric genus equal to two, *Amer. J. Math.*, Vol. 101 (1979), 813-854.
8. On strongly elliptic singularities, *Amer. J. Math.*, Vol. 101 (1979), 855-884.
15. Existence of L2-integrable holomorphic forms and lower estimates of T1V, *Duke Math. J.*, Vol. 48 (1981), 537-547.
16. Criterion for biholomorphic equivalence of isolated hypersurface singularities (with John Mather), *Proc. Nat. Acad. Sci., USA*, Vol. 78, No. 10 (1981), 5946-5947.
17. Milnor number and classification of isolated singularities of holomorphic maps (with Bruce Bennett), *Lecture Notes in Mathematics* 949, Springer-Verlag (1982), 1-34.
18.  $s^{n-1}$  invariant for isolated  $n$ -dimensional singularities and its application to moduli problem, *Amer. J. Math.*, Vol. 104, No. 4 (1982), 829-841.
19. Classification of isolated hypersurface singularities by their moduli algebras (with John N. Mather), *Invent. Math.*, Vol. 69 (1982), 243-251.
20. Various numerical invariants for isolated singularities, *Amer. J. Math.*, Vol. 104, No. 5 (1982), 1063-1100.

21. On irregularity and geometric genus of isolated singularities, Proc. Symp. Pure Math., Vol. 40, Part 2 (1983), 653-662.
22. Milnor algebras and equivalent relations among holomorphic functions, Bull. Amer. Math. Soc., Vol. 9 (1983), 235-239.
23. Continuous family of finite-dimensional representations of a solvable Lie algebra arising from singularities, Proc. Natl. Acad. Sci. USA, Vol. 80 (1983), 7694-7696.
24. Criteria for right-left equivalence and right equivalence of holomorphic functions with isolated critical points, Complex Analysis Several Complex Variables, Proc. Symp. Pure Math., Vol. 41 (1984), 291-297.
25. Riemann-Roch theorem for strongly pseudoconvex manifolds of dimension three (with Paul Yang), Several Complex Variables, Proc. of the 1981 Hangzhou Conf., Birkhauser, Boston, (1984), 257-267.
26. An estimate of the gap of the first two eigenvalues in the Schrödinger operator (with I.M. Singer, Bun Wong and Shing-Tung Yau), Ann. Scuola Norm. Sup., Pisa, Classe di Scienze, Serie IV, Vol. XII, No. 2 (1985), 319-333.
27. Solvable Lie algebras and generalized Cartan Matrices arising from isolated singularities, Math. Z., Vol. 191 (1986), 489-506.
28. Singularities defined by  $sl(2, \mathbb{C})$  invariant polynomials and solvability of Lie algebras arising from isolated singularities, Amer. J. Math., Vol. 108 (1986), 1215-1239.
29. Lie algebras and their representations arising from isolated singularities: Computer method in calculating the Lie algebra and their cohomology (with Max Benson), Adv. Stud. Pure Math. 8, Complex Analytic Singularities (1986), 3-58.
30. A necessary and sufficient condition for a local commutative algebra to be a moduli algebra: weighted homogeneous case, Adv. Stud. Pure Math. 8, Complex Analytic Singularities (1986), 687-697.
31. Some surfaces covered by the ball and a problem in finite groups (with G.D. Mostow), Lecture Notes in Math., Springer-Verlag, Proc. of a Symposium in Honor of T.A. Springer, Vol. 1271 (1987), 201-228.
32. Holomorphic symmetries (with Blaine Lawson), Ann. Sci. École Norm. Sup. 4e series, t., Vol. 20 (1987), 557-577.
33. Classification of Jacobian ideals invariant by  $sl(2, \mathbb{C})$  actions, Mem. Amer. Math. Soc., Vol. 72 (1988), 1-180.
34. Topological types and multiplicities of isolated quasi-homogeneous surface singularities, Bull. Amer. Soc., Vol. 19 (1988), 447-454.
35. The inequality  $\mu \geq 12pg - 4$  for weakly elliptic hypersurface singularities (with Yi-Jing Xu), Contemp. Math. 90 (1989), 317-344.
36. Topological types of isolated hypersurface singularities, Contemp. Math., Vol. 101 (1989), 303-321.
37. Classification of topological types of isolated quasi-homogeneous two-dimensional hypersurface singularities (with Yijing Xu), Manuscripta Math., Vol. 64 (1989), 445-469.
38. the Multiplicity of isolated two-dimensional hypersurface singularities: Zariski problem, Amer. J. Math., Vol. 111 (1989), 753-767.
39. Recent results on finite dimensional exact estimation algebra (with L.F. Tam and W.S. Wong), Proceedings of the 28th Conf. on Decision and Control at Tampa, Florida, Dec. (1989), 2574-2575.
40. On a necessary and sufficient condition for finite dimensionality of estimation algebras (with L.F. Tam and W.S. Wong), SIAM J. Control Optim., Vol. 28, No. 1 (1990), 173-185.



41. Variation of complex structures and variation of Lie algebras (with Craig Seeley), *Invent. Math.*, Vol. 99 (1990), 545-565.
42. Equivalences between isolated hypersurface singularities (with Max Benson), *Math. Ann.*, Vol. 287 (1990), 107-134.
43. An obstruction for smoothing of Gorenstein surface singularities (with A. Libgober), *Comment. Math. Helv.*, Vol. 65 (1990), 413-433.
44. Recent results on nonlinear filtering: New class of finite dimensional filters, *Proceedings of the 29th Conference on Decision and Control at Honolulu, Hawaii, Dec. (1990)*, 231-233.
45. A remark on moduli of complex hypersurface, *Amer. J. Math.*, Vol. 113 (1990), 287-292.
46. Structure and classification theorems of finite-dimensional exact estimation algebras (with R.T. Dong, L.F. Tam and W.S. Wong), *SIAM J. Control Optim.*, Vol. 29, No. 4 (1991), 866-877.
47. Obstructions to embedding of real compact  $(2n-1)$ -dimensional CR-manifold in  $C^{n+1}$  (with H.S. Luk), *Proceedings of Symposia in Pure Mathematics*, Vol. 52 (1991), Part 3, 261-276.
48. Regularity for the Harvey-Lawson solutions to the complex Plateau problem, *J. Differential Geom.*, Vol. 34 (1991), 425-429.
49. Solvability of Lie algebras arising from isolated singularities and nonisolatedness of singularities defined by  $\mathfrak{sl}(2, \mathbb{C})$  invariant polynomials, *Amer. J. Math.*, Vol. 113 (1991), 773-778.
50. Algebraic methods in the study of simple-elliptic singularities, (with Craig Seeley), *Lecture Notes in Mathematics*, Vol. 1479 (1991), 216-237.
51. Recent results on classification of finite dimensional estimation algebras: Dimension of state space  $\leq 2$  (with Wen-Lin Chiou), *Proceedings of the 30th Conf. on Decision and Control, Brighton, England, Dec. 11-13 (1991)*, 2758-2760.
52. Topological types of seven classes of isolated singularities with  $C^*$ -action (with Yi-Jing Xu), *Rocky Mountain J. Math.*, Vol. 22, (1992) 1147-1215.
53. Classification of gradient space as  $\mathfrak{sl}(2, \mathbb{C})$ -module I (with J. Sampson and Yung Yu), *Amer. J. Math.*, Vol. 114 (1992), 1147-1161.
54. A Sharp estimate of the number of integral points in a tetrahedron (with Yi-Jing Xu), *Journal für die reine und angewandte Mathematik*, Vol. 423 (1992), 199-219.
55. Recent result on classification of finite dimensional maximal rank estimation algebras with state space dimension 3 (with Chi-Wah Leung), *Proceedings of the 31st Conference on Decision and Control, Tucson, Arizona, Dec. (1992)*, 2247-2250.
56. Explicit fundamental solution to Kolmogorov equation (with S.T. Yau), *Proceedings of the 31st Conference on Decision and Control, Tucson, Arizona, Dec. (1992)*, 1508-1511.
57. Classification of finite dimensional filters from Lie algebraic point of view, *Transaction of the Ninth Army Conference on Applied Mathematics and Computing*, (1992), 459-466.
58. Complex Hypersurface Singularities with Application in Complex Geometry, Algebraic Geometry and Lie Algebra, *Lecture Notes Series Number 5, 1992*, Research Institute of Mathematics, Global Analysis Research Center, Seoul National University, Seoul Korea.
59. Durfee conjecture and coordinate free characterization of homogeneous singularities (with Yi-Jing Xu), *Journal of Differential Geometry*, Vol. 37 (1993), 375-396.
60. Gorenstein quotient singularities in dimension three (with Yung Yu), *Mem. Amer. Math. Soc.*, Vol. 105, No. 105 (1993), 1-81.
61. Topological and differentiable structures of the complement of an arrangement of hyperplanes

- (with Tan Jiang), Proceedings of Symposia in Pure Mathematics, Vol.54 (1993), part 2, 337-357.
62. Topological invariance of intersection lattices of arrangements in  $CP^2$  (with Tan Jiang), Bulletin A.M.S., Vol.39, No.1 (1993), 88-93.
  63. Cohomology and Splitting Criterion for holomorphic vector bundles on  $CP^n$  (with Hing Sun Luk), Math. Nachr., Vol. 161 (1993), 223-238.
  64. Finite dimensional estimation algebras of maximal rank with dimension of state space equal to 3 (with Jie Chen and Chi-Wah Leung), Tenth Army Conference on Applied Mathematics and Computing, (1993), 337-344.
  65. Finite dimensional estimation algebras of maximal rank with dimension of state space equal to 4 (with Jie Chen and Chi-Wah Leung), European Control Conference, Groningen, The Netherlands, June 28-July 1, (1993), 2126-2130.
  66. Some remarks on wavelet transforms (with Tomasz Bielecki, Jie Chen, E. Bing Lin), IEEE Proceeding of the first Regional Conference on Aerospace Control Systems, May 25-27, (1993), 148-150.
  67. Explicit construction of finite dimensional nonlinear filters with state space dimension 2 (with Wen-Lin Chiou), Proceedings of the 32nd Conference on Decision and Control, San Antonio, Texas, Dec. (1993), 710-713.
  68. The classification of low dimensional estimation algebras (with Jie chen and Chi-wah Leung), Proceedings of 32nd Conference on Decision and Control, San Antonio, Texas, Dec. (1993), 732-734.
  69. Wavelet and Wavelet Stieltjes transforms (with T. Bielecki, J. Chen and E. Lin), Proceedings of the 32nd Conference on Decision and Control, San Antonio, Texas, Dec. (1993), 3062-3063.
  70. Some PDE problem: from estimation algebras (with Rui-Tao Dong, W. S. Wong), Proceedings on Aerospace control systems, The first IEEE Regional conference, (1993), May 25-27, 143-147.
  71. Finite dimensional filters with nonlinear drift I: A class of filters including both Kalman-Bucy filters and Benes filters, J. of Math. Systems, Estimation and Control, Vol. 4, No.2 (1994), 181-203.
  72. Finite-dimensional filters with nonlinear drift I-I: Brockett's problem on classification of finite-dimensional estimation algebras (with Wen-Lin Chiou), SIAM J. Control and Optimization, Vol. 32, No. 1 (1994), 297-310.
  73. Diffeomorphic types of the complements of arrangements of hyperplanes (with Tan Jiang), Composito Mathematica, Vol. 92, No. 2 (1994), 133-155.
  74. Explicit formal solution to generalized Kolmogorov equation (with Shing Tung Yau), Eleventh Army Conference on Applied Mathematics and Computing, (1994), 373-386
  75. Algebraic classification and obstructions of embedding of strongly Pseudoconvex compact 3-dimensional CR manifolds in  $C^3$  (with Hing Sun Luk and Yung Yu), Math. Nachr., Vol. 170 (1994), 183-200.
  76. Computing the exponential of matrices, (with Hon Wing Cheng) Proceedings of the American Control Conference, Baltimore, Maryland. June, (1994), 3543-3547.
  77. New direct method for Kalman-Bucy filtering system with arbitrary initial condition (with S.T. Yau), Proceedings of the 33rd IEEE conference on Decision and Control, Lake Buena Vista, Florida, Dec. 14-16,(1994), 1221-1225.
  78. Random Wavelet Transformation and its Properties (with Tomasz R.Bielecki and Jie Chen), SPIE Proceedings on Wavelet Applications in Signal and Image Processing II, Andrew Laine and Michael Unser, eds, Vol. 2303, July, (1994), 345-353 .

79. Nonexistence of Negative Weight Derivation of Moduli Algebras of Weighted Homogeneous Singularities (with Hao Chen and Yi-Jing Xu), *Journal of Algebra*, Vol. 172 (1995), 243-254.
80. Applying wavelet to Kolmogorov equation (with Zhigang Liang), *Proceeding of International Conference on Control and Information*, (1995), 271-276.
81. A report on explicit formulas for  $\exp(tA)$  (with Hon-wing Cheng), *Proceeding of International Conference on Control and Information*, (1995), 69-75.
82. Recent results on classification of 4-dimensional estimation algebras (with Amid Rasoulian), *Proceeding of International Conference on Control and Information*, (1995), 371-374.
83. Random wavelet transform, algebraic geometric coding and their applications in compression and de-noising of signals (with Tomasz Bielecki; Man K. Kwong; Li M. Song), *Proceeding of International Conference on Control and Information*, (1995), 283-289.
84. Explicit construction of finite dimensional nonlinear filters with state space dimension 3 (with Jie Chen and Chi-Wah Leung) *Proceedings of the 34th IEEE Conference on Decision and Control*, New Orleans, Louisiana, Dec. 13-15, (1995), 4030-4034.
85. Construction of new finite dimensional nonlinear filters (with Amid Rasoulian), *Proceedings of the 34th IEEE Conference on Decision and Control*, New Orleans, Louisiana, Dec. 13-15, (1995), 4002-4005.
86. Invariants of Strongly Pseudoconvex CR manifolds (with Hing-Sun Luk), *Five Decades as a Mathematician and Educator, On the 80th Birthday of Professor Yung-Chow Wong*, *World Scientific*, (1995), 279-305.
87. Invariant Kohn-Rossi cohomology and obstruction to embedding of compact real  $(2n-1)$ -dimensional CR manifolds in  $C^N$  (with H.-S. Luk), *Journal of the Mathematical Society of Japan*, Vol. 48, (1996), 61-68.
88. Finite-dimensional filters with nonlinear drift IV: classification of finite-dimensional estimation algebras of maximal rank with state-space dimension 3 (with Jie Chen, Chi-Wah Leung), *SIAM J. Control and Optimization*, Vol. 34, No. 1 (1996), 179-198.
89. Direct method without the Riccati equation for a linear filtering system with arbitrary initial conditions (with Guo-Qing Hu), *13th World Congress IFAC*, San Francisco, June 30-July 5, Vol. H (1996), 469-474.
90. Microlocal characterization of quasi-homogeneous singularities (with Yijing Xu), *Amer. J. Math*, Vol. 118 (1996), 389-399.
91. Iconic indexing and maintenance of spatial relationships in image databases (with Qing-Long Zhang and Shi-Kuo Chang), *Conference on Multimedia Storage and Archiving Systems, SPIE's Photonics East 96 Symposium*, Boston, MA, Nov. 18-22, 1996.
92. Explicit solution of a Kolmogorov equation (with S.T. Yau), *Applied Mathematics and Optimization*, Vol. 34 (1996), 231-266.
93. A unified approach to indexing images in image databases (with Qing-Long Zhang and Shi-Kuo Chang), *Proceedings of First International Workshop on Image Databases and Multi-Media Search*, Amsterdam, The Netherlands, August 22-23, 1996, 99-106.
94. A sharp estimate of the number of integral points in a 4-dimensional tetrahedron (with Yi-Jing Xu), *Journal für die reine und angewandte Mathematik*, Vol. 473 (1996), 1-23.
95. The Structure of  $\Omega$ -matrix in nonlinear filters (with Amid Rasoulian), *Proceedings of the 35th Conference on Decision and Control*, Kobe, Japan (1996), 1083-1087.

96. Parallel ODE-solvers for Kalman-Bucy Filter with Arbitrary Initial Condition (with Hon-Wing Cheng), Proceedings of the 35th Conference on Decision and Control, Kobe, Japan (1996), 4138-4145.
97. New direct method for Yau filtering system with arbitrary initial conditions (with Guo-Qing Hu), Proceedings of the 35th Conference on Decision and Control, Kobe, Japan (1996), 2539-2544.
98. A unified approach to iconic indexing, retrieval and maintenance of spatial relationships in image databases (with Qing-Long Zhang and Shi-Kuo Chang), Journal of Visual Communication and Image Representation, Vol. 7, No. 4 (Special Issue), Dec. (1996), 307-324.
99. Finite-dimensional filters with nonlinear drift, VI: Linear structure of  $\Omega$  (with Jie Chen), Math. Control Signals Systems, Vol. 9(1996), 370-385.
100. Complete Algebraic CR Invariants of codimension 3 strongly pseudoconvex CR manifolds (with Hing Sun Luk), Studies in Advanced Mathematics, Singularities and Complex Geometry, AMS/IP, Vol. 5 (1997), 175-182.
101. Complement of arrangement of hyperplanes (with Tan Jiang), Studies in Advanced Mathematics, Singularities and Complex Geometry, AMS/IP, Vol. 5 (1997), 93-104.
102. Finite-dimensional filters with nonlinear drift I-II: Duncan-Mortensen-Zakai equation with arbitrary initial condition for the linear filtering system and the Benes filtering system (with Shing-Tung Yau), IEEE Transactions on Aerospace and Electronic Systems, Vol. 33, No. 4, Oct. (1997), 1277-1294.
103. More explicit formulas for the matrix exponential (with Hon-Wing Cheng), Linear Algebra and Its Applications, Vol. 262 (1997), 131-163.
104. Finite-dimensional filters with nonlinear drift V: Solution to Kolmogorov equation arising from linear filtering with non-Gaussian initial condition (with Zhigang Liang and Shing-Tung Yau), IEEE Transactions on Aerospace and Electronic Systems, Vol. 33, No. 4, Oct. (1997), 1295-1308.
105. Finite-dimensional filters with nonlinear drift VII: Mitter conjecture and structure of  $\eta$  (with Jie Chen), SIAM J. Control Optim., Vol. 35, No. 4, July (1997), 1116-1131.
106. Finite-dimensional filters with nonlinear drift VIII: Classification of finite-dimensional estimation algebras of maximal rank with state-space dimension 4 (with Jie Chen and Chi-Wah Leung), SIAM J. Control Optim., Vol. 35, No. 4, July (1997), 1132-1141.
107. Finite dimensional filters with non-linear drift IX: construction of finite dimensional estimation algebras of non-maximal rank (with Amid Rasoulilian), Systems & Control Letters, Vol. 30 (1997), 109-118.
108. Contribution to Munuera's Problem on the Main Conjecture of Geometric Hyperelliptic MDS Codes (with Hao Chen), IEEE Trans. Inform. Theory, Vol. 43, No. 4 (1997), 1349-1354.
109. A new iconic indexing for 2D and 3D scenes (with Qing-Long Zhang), Proceeding of the Second Chinese World Congress on Intelligent Control and Intelligent Automation (CWCICIA 97), Xian, June 23-27, 1997, 1667-1672.
110. Explicit solution of DMZ equation (with Guo-Qing Hu), Proceedings of the 36th IEEE Conference on Decision and Control, San Diego, California, Dec.(1997), 4455-4459.
111. Explicit construction of finite-dimensional nonlinear filters with state space dimension 4 (with Chi-Wah Leung and Jie Chen), Proceedings of the 36th IEEE Conference on Decision and Control, San Diego, California, Dec.(1997), 4462-4466.
112. Filtering systems with finite-dimensional estimation algebras (with Rui-Tao Dong and Wing-Shing Wong), IEEE Transactions on Automatic Control, Vol. 42, No. 11 (1997), 1601-1606.

113. An Experimental Result in Image Indexing using GEP-2D Strings (with Qing-Long Zhang and Shi-Kuo Chang), Image Database and Multimedia Search (eds. A. Smeulders and R. Jain), World Scientific Publ. Co., 1997, 127-146.
114. Some remarks on compact strongly pseudoconvex CR manifolds (with H.S. Luk), Advanced Studies in Pure Mathematics 25, CR-Geometry and Overdetermined Systems (1997), 237-246.
115. Singularities and Complex Geometry (with Q.K. Lu and A. Libgober), AMS/IP, Studies in Advanced Mathematics, Vol. 5 (1997).
116. Addendum to "Finite -Dimensional Filters with Nonlinear Drift": A Response to F. Daum's Comments (with Shing Tung Yau), IEEE Transactions on Aerospace and Electronic Systems, Vol. 34, No.2 (1998), 691-692.
117. Explicit construction of graph invariant for strongly pseudo-convex compact 3-dimensional rational CR manifolds (with Hing-Sun Luk), Compositio Mathematica, Vol. 114 (1998), 77-111.
118. The estimation algebra of nonlinear filtering systems (with W.S. Wong), Mathematical Control Theory, Special Volume Dedicated to 60th Birthday of Brockett (J. Baillieul and J.C. Willems eds.), Springer Verlag, (1998), 33-65.
119. Intersection lattices and topological structures of complements of arrangements in  $CP^2$  (with Tan Jiang), Ann. Scuola Norm. Sup. Pisa Cl. Sci (4), Vol. XXVI (1998), 357-381.
120. Explicit Computation of Generalized Hamming Weights for Some Algebraic Geometric Codes (with Hao Chen and Hing Sun Luk), Advanced in Applied Mathematics, Vol. 21 (1998), 124-145.
121. Finite Dimensional Filters with Nonlinear Drift XI: Explicit Solution of the Generalized Kolmogorov Equation in the Brockett-Mitter Program (with Shing-Tung Yau), Advances in Mathematics, Vol. 140 (1998), 156-189.
122. Recent results on classification of finite dimensional maximal rank estimation algebras with state space dimension up to 5 (with Guo-Qing Hu), Proceedings of the 37th IEEE Conference on Decision and Control, Dec.16-18, Tampa, FL, (1998), 1311-1312.
123. Recent advance in computing Kolmogorov equation arising from nonlinear filtering (with Xi Wu and Ke-Pao Lin), Proceedings of the 37th IEEE Conference on Decision and Control, Dec.16-18, Tampa, FL, (1998), 2904-2905.
124. Counterexample to boundary regularity of a strongly pseudoconvex CR submanifold: An addendum to the paper of Harvey-Lawson (with Hing Sun Luk), Annals of Mathematics, Vol. 148 (1998), 1153-1154.
125. Existence and Decay Estimates for Time Dependent Parabolic Equation with Application to Duncan-Mortensen-Zakai equation (with S.T. Yau), Asian Journal of Mathematics, Vol. 2, No. 4 (1998), 1079-1150.
126. Explicit Computation of Cohomological Algebra of Complement of Arrangement of Hyperplanes in  $C^3$  and New Geometric Characterization of Supersolvable Arrangements (with Tan Jiang), Proceeding of International Conference on Algebra and Geometry, International Press, (1998), 47-73.
127. Lie algebraic method in nonlinear filtering with state space dimension up to 6 (with Larn-Ying Yeh), the 14th world congress of IFAC, Beijing, China, (1999), 97-102.
128. Approximate nonlinear output regulation based on the universal approximation theorem (with Jin Wang and Jie Huang), Proceedings of the World Multiconference on Systems, Cybernetics and Informations, Orlando, Florida, Vol. 7, July 1999, 218-225.
129. Wavelet representations of general signals (with T. Bielecki, J. Chen and E. B. Lin), Nonlinear Analysis, Vol. 35 (1999), 125-141.

130. Hessian Matrix Non-decomposition Theorem (with Xi Wu and Wing-Shing Wong), *Mathematical Research Letter*, Vol. 6 (1999), 663-673.
131. Classification of Four-Dimensional Estimation Algebras (with Amid Rasouljan), *IEEE Transactions on Automatic Control*, Vol. 44, No. 4 (1999), 2312-2318.
132. Explicit Solution to Generalized Time-Varying Kolmogorov Equation (with Xi Wu), *Proceedings of the 38th IEEE Conference on Decision and Control*, Phoenix, Arizona, December, (1999), 1897-1902.
133. Moduli and Modular groups of a class of Calabi-Yau  $n$ -dimensional manifolds,  $n \geq 3$  (with Hao Chen), *Journal of Differential Geometry*, Vol. 54, No. 1 (1999), 1-12.
134. Lectures on Systems, Control and Information (with Lei Guo), *AMS/IP, Studies in Advanced Mathematics*, Vol. 17 (2000).
135. Approximate nonlinear output regulation based on the universal approximation theorem (with Jin Wang and Jie Huang), *International Journal of Robust and Nonlinear Control*, Vol. 10, April 2000, 439-456.
136. Brockett's Problem on Nonlinear Filtering Theory, *AMS/IP, Studies in Advanced Mathematics*, Vol. 17 (2000), 177-212.
137. Real time solution of nonlinear filtering problem without memory I (with Shing-Tung Yau), *Mathematical Research Letters*, Vol. 7 (2000), 671-693.
138.  $Z_8$ -cyclic codes and quadratic residue codes (with Mei Hui Chiu and Yung Yu), *Advanced in Applied Math.*, Vol. 25 (2000), 12-33.
139. Existence of Solutions to Time Dependent Parabolic Equations with Unbounded Coefficients: Application to Duncan-Mortensen-Zakai Equations (with Shing-Tung Yau), *Proceedings of the American Control Conference*, Chicago, June, (2000), 794-798.
140. Linear Filtering System with Arbitrary Initial Conditions (with Xi Wu), *Proceedings of the American Control Conference*, Chicago, June, (2000), 785-789.
141. Solution to Brockett's problem on finite dimensional estimation algebras of maximal rank in nonlinear filtering, *Proceedings of the 38th IEEE Conference on Decision and Control*, Sydney, Australia, Dec. 2000, 292-297.
142. A study of Tracking-Differentiator (with X.J. Wang and Jie Huang), *Proceedings of the 39th IEEE Conference on Decision and Control*, Sydney, Australia, Dec. 2000, 4783-4788.
143. New Technique in Proving the Linear Structure of  $\Omega$ -Matrix in Nonlinear Filtering Systems with Finite Dimensional Estimation Algebras (with Wen-Lin Chiou and Jie Chen), *Proceedings of 19th Chinese Control Conference*, Hong Kong, Dec. 2000, 384-388.
144. Algebraic determination of isomorphism classes of the moduli algebras of  $\tilde{E}_6$  singularities (with Hao Chen, and Craig Seeley), *Math. Ann.*, Vol. 318 (2000), 637-666.
145. Finite dimensional filters with nonlinear drift XI-II: Classification of finite-dimensional estimation algebras of maximal rank with state space dimension less than or equal to five (with GuoQing Hu and Wen-Lin Chiou), *Asian Journal of Math*, Vol. 4, No. 4 (2000), 905-932.
146. Finite-dimensional filters with nonlinear drift X: Explicit Solution of DMZ Equation (with GuoQing Hu), *IEEE Transactions on Automatic Control*, Vol. 46, No. 1 (2001), 142-148.
147. Simple geometric characterization of supersolvable arrangements (with Tan Jiang and Larn-Ying Yeh), *Rocky Mountain Journal of Mathematics*, Vol. 31, No. 1 (2001), 303-312.
148. Sharp polynomial upper estimate of number of positive integral points in Tetrahedron and coordinate free characterization of homogeneous

- polynomials (with Ke-Pao Lin), *AMS/IP Studies in Advanced Mathematics, ICCM*, Vol. 20 (2001), 251-259.
149. An example of a real analytic strongly pseudoconvex hypersurfaces which is not holomorphically equivalent to any algebraic hypersurfaces (with Xiaojun Huang and Shanyu Ji), *Arkiv for Matematik*, Vol. 39 (2001), 75-93.
  150. Real time numerical solution to Duncan-Mortensen-Zakai equation (with Shing-Tung Yau), *Foundations of Computational Mathematics* (eds. R.A. DeVore, A. Iserles & E. Suli), Cambridge University Press, Cambridge, 2001, 361-400.
  151. Bergman kernels on resolutions of isolated singularities (with H.S. Luk and L.Y. Yeh), *Mathematical Research Letters*, Vol. 8 (2001), 303-319.
  152. The Consistency Problem on Content-based Pictorial Description in Pictorial Database Systems (with Qing-Long Zhang and Shi-Kuo Chang), *Communication in Information and Systems*, Vol. 1.2, 2001, 225-240.
  153. Real time algorithm for nonlinear filtering problem (with S.T. Yau), *Proceedings of the 40th IEEE Conference on Decision and Control*, Orlando, Florida, Dec. 2001, 2137-2142.
  154. Estimation algebras with state dimension 2 (with X. Wu), *Proceedings of the 40th IEEE Conference on Decision and Control*, Orlando, Florida, Dec. 2001, 2556-2561.
  155. A sharp upper estimate of the number of integral points in a 5-dimensional Tetrahedra (with Ke-Pao Lin), *Journal of Number Theory*, Vol. 93 (2002), 207-234.
  156. Finite-dimensional filters with nonlinear drift XV: New direct method for construction of universal finite-dimensional filter (with Guo-Qing Hu), *IEEE Transactions on Aerospace and Electronic Systems*, Vol. 38, No. 1 (2002), 50-57.
  157. Analysis for a sharp polynomial upper estimate of the number of positive integral points in a 4-dimensional tetrahedron (with Ke-Pao Lin), *J. Reine Angew. Math.*, Vol. 547 (2002), 191-205.
  158. Design of the ordinary differential equation solver in the Yau filtering system (with Yuen-Tai Lai and Ping-Hua Chen), *Proceedings of the American Control Conference*, Alaska, May, (2002), 5144-5149.
  159. On the under-determined partial differential equation in the nonlinear filtering problems (with Xi Wu), *Proceedings of the American Control Conference*, Alaska, May, (2002), 907-908.
  160. Finite-dimensional filters with nonlinear drift XII: Linear and constant structure of Wong-Matrix (with X. Wu and G.-Q. Hu), *Stochastic Theory and Control*, *Proceedings of Workshop held in Lawrence, Kansas, Lecture Notes in Control and Information Sciences #280*, Springer-Verlag, B. Pasik-Duncan<Ed> (2002), 507-518.
  161. Constant structure of Wong's matrix in the maximal rank estimation algebra (with Xi Wu and Xiaozhou Yang), *International Conference on Control and Automation*, June 16-19, 2002, Xiamen, China, 1950-1954.
  162. Algebraic classification of rational CR-structures on topological 5-sphere with transversal holomorphic  $S^1$ -action in  $C^4$  (with Yung Yu), *Math. Nachrichten*, Vol. 246-247, (2002), 207-233.
  163. Complete classification of finite-dimensional estimation algebras of maximal rank, *International Journal of Control*, Vol. 76, No. 7 (2003), 657-677.
  164. DNA sequence representation without degeneracy (with J.S. Wang, A. Niknejad, C.X. Lu, N. Jin and Y.K. Ho), *Nucleic Acids Research*, Vol. 31, No. 12 (2003), 3078-3080.
  165. Counting number of integral points in a general n-dimensional Tetrahedra and Bernoulli polynomials (with K.P. Lin), *Canadian Mathematical Bulletin*, Vol. 46, No. 2 (2003), 229-241.

166. Construction of finite-dimensional nonlinear filter via ODEs (with N. Jin and C. L. Yan), Proceedings of the 2003 American Control Conference (ACC 2003), Denver, Colorado, June 4-6, (2003), 2447-2452.
167. Punctured local holomorphic de Rham cohomology (with Xiaojun Huang and Hing Sun Luk), Journal of the Math. Soc. of Japan, Vol. 55, No. 3 (2003), 633-640.
168. Explicit solution of DMZ equation in nonlinear filtering via solution of ODEs (with Yuen-Tai Lai), IEEE Transactions on Automatic Control, Vol. 48, No. 3 (2003), 505-508.
169. Some remarks on the local moduli of tangent bundles over complex surfaces (with W.S. Cheung and B. Wong), Amer. J. Math., Vol. 125 (2003), 1029-1035.
170. Numerical solution of 1-D robust DMZ equation (with N. Jin), Proceedings of the 2003 IEEE International Symposium on Intelligent Control, Houston, Texas, Oct. 5-8, 2003, 827-830.
171. Holomorphic De-Rham cohomology of strongly pseudoconvex CR manifolds with holomorphic  $S^1$ -actions (with Hing Sun Luk), Journal of Differential Geometry, Vol. 63 (2003), 155-170.
172. A general approach to indexing and retrieval of images in image database (with Qing-Long Zhang), Communication in Information and Systems, Vol. 3, No. 1 (2003), 61-73.
173. Recent results on classification of low dimensional estimation algebras (with W-L. Chiou and W-R. Chiueh), Proceedings of 42nd IEEE CDC, 2003, Maui, Hawaii, Dec. 9-12, 5853-5858.
174. Hausdorff dimension of invariant c-vector of M-matrix and self-affine fractals (with Ning Jin), Asian Journal of Mathematics, Vol. 8, No. 2 (2004), 259-286.
175. A stepwise approximation of intractable spatial constraints in image queries (with Qing-Long Zhang), Communications in Information and Systems, Vol. 3, No. 3 (2003), 203-221.
176. Nonlinear filtering and time varying Schrödinger equation I (with Shing-Tung Yau), IEEE Transactions on Aerospace and Electronic Systems, Vol. 40, No. 1 (2004), 284-292.
177. Lower estimate of multiplicity of isolated complete intersection singularities with applications in weakly elliptic singularities (with Yijing Xu), Mathematical Research Letter, Vol. 11 (2004), 59-71.
178. Classification of affine varieties being cones over nonsingular projective varieties: hypersurface case (with Ke-Pao Lin), Communications in Analysis and Geometry. Vol. 12, No. 5 (2004), 1201-1219.
179. Linear filtering with nonlinear observations (with Shing-Tung Yau and Changlin Yan), Proceeding of 43rd IEEE CDC, Atlantis Paradise Island, Bahama, Dec., 14-17, (2004), 2112-2117.
180. Global invariants for strongly pseudoconvex varieties with isolated singularities: Bergman functions, Mathematical Research Letter, Vol. 11 (2004), 809-832.
181. Numerical characterization for affine varieties be a cone over nonsingular projective varieties, Complex Analysis in Several Variables, Kyoto/Nara. Memorial Conference of Kiyoshi Oka's Centennial Birthday. Advanced Studies in Pure Mathematics, Vol. 42 (2004), 333-338.
182. Computation of Fokker-Planck equation, Quarterly of Applied Mathematics, Vol. LXII, No. 4 (2004), 643-650.
183. Wavelet-Crallerkin Method for the Kolmogorov Equation (with Zhigang Liang), Mathematical and Computer Modelling, Vol. 40 (2004), 1093-1121.
184. On intractability of spatial relationships in content-based image database systems (with Qing-Long Zhang), Communications in Information and Systems, Vol. 4, No. 2 (2004), 181-190.



185. Parallel computations for Yau Filters (with Hon-Wing Cheng), *Computers and Mathematics with Applications*, Vol. 50 (2005), 881-893.
186. Classification of 3-dimensional isolated rational hypersurface singularities with  $C^*$ -action, (with Yung Yu), *Rocky Mountain Journal of Mathematics*, Vol. 35, Issue 4 (2005), 1795-1802.
187. Rigidity of differentiable structure for new class of line arrangements (with Shaobo Wang), *Communications in Analysis and Geometry*, Vol. 13, No. 5 (2005), 1057-1075.
188. General Finite type IFS and M-matrix (with Ning Jin), *Communication in Analysis and Geometry*, Vol. 13, No. 4 (2005), 821-843.
189. Classification of Finite-Dimensional Estimation Algebras of Maximal Rank with Arbitrary State-Space Dimension and Mitter Conjecture (with G. Q. Hu), *International Journal of Control*, Vol. 78, No. 10 (2005), 689-705.
190. Solution of filtering problem with nonlinear observations (with S.T. Yau), *SIAM J. Control and Optimization*, Vol. 44, No. 3 (2005), 1019-1039.
191. On completeness of reasoning about planar spatial relationships in pictorial retrieval systems (with Qing-Long Zhang), *Communications in Information and Systems*, Vol. 4, No. 3 (2005), 211-233.
192. A stepwise similarity approximation of spatial constraints for image retrieval (with Qing-Long Zhang), *Proceedings of Visual Communications and Image Processing (VCIP2005)*, Beijing, China, SPIE Vol. 5960, July 12-15, (2005), 1550-1561.
193. A Fourier characteristic of coding sequences: Origins and a non-Fourier approximation (with Changchuan Yin), *Journal of Computation Biology*, Vol. 12, No. 9 (2005), 1153-1165.
194. Existence and uniqueness of solutions for Duncan-Mortensen-Zakai equations (with S.T. Yau), *Proceedings of 44th IEEE CDC, and ECC*, Seville, Spain, Dec. (2005), 536-541.
195. Filtering problem with nonlinear observations and drift terms equal to gradient vector field plus affine vector field (with Lixing Jia), *Proceedings of 44th IEEE CDC, and ECC*, Seville, Spain, Dec. (2005), 5865-5870.
196. Finding Minimal and maximal sets of spatial relationships in picture retrieval systems, (with Qing-Long Zhang), *Communication in Information and Systems*, Vol. 5, No.3 (2005) 23-52
197. On consistency checking of spatial relationships in content-based image database systems,(with Qing-Long Zhang and Shi-Kuo Chang), *Communication in Information and Systems*, Vol. 5, No.3 (2005), 53-78
198. Structure theorem for five dimensional estimation algebras (with Wen-Lin Chiou and Woei-Ren Chiueh), *Systems and Control Letters*, Vol. 55, No. 4 (2006), 275-281.
199. Complete invariant of a family of strongly pseudoconvex domains in  $A_1$ -singularity: Bergman function (with Hing Sun Luk and Weitian Zang), *Contemporary Math.*, AMS, Vol. 400 (2006), 161-171
200. On a CR family of compact strongly pseudoconvex CR manifolds (with X. Huang and H.S. Luk), *Journal of Differential Geometry*, Vol. 72, No.3 (2006), 353-379.
201. Categorical clustering by converting associated information (with Dongmin Cai), *International Journal of Computer Science systems and Engineering*, Vol. 3, No. 4(2006), 192-197.
202. A new suboptimal filter and numerical simulations for the cubic sensor problem (with Changlin Yan), *IEEE ICNSC*, (2006), 351-356.
203. Path dependent options: The case of high water mark provision for hedge funds (with Zhe Li), *Computational Finance and its Applications II*, Editors M. Castantino & C. A. Brebbia, WIT Transactions on Modeling and Simulation, Vol. 43 (2006), 393-400.

204. A remark on lower bound of Milnor number and characterization of homogeneous hypersurface singularities (with Ke-Pao Lin, Xi Wu and Hing-Sun Luk), *Communications in Analysis and Geometry*, Vol. 14, No. 4 (2006), 625-632.
205. Classification of estimation algebras with state dimension 2 (with Xi Wu), *SIAM J. Control and Optimization*, Vol. 45, No. 3 (2006), 1039-1073.
206. Exotic option, stochastic volatility and incentive scheme, (with JiuHong Tang), *Computational Finance and its Application II*, Editors M. Castantino & C. A. Brebbia, *WIT Transactions on Modeling and Simulation*, Vol. 43 (2006), 183-192.
207. Clustering DNA sequences by features vectors (with Libin Liu and Yee-kin Ho), *Molecular Phylogenetics and Evolution*, Vol. 41 (2006), 64-69.
208. Characterization of isolated homogeneous hypersurface singularities in  $C^4$  (with Kepao Lin and Zhanhan Tu), *Science in China. Series A: Mathematics*, Vol. 49, No. 11 (2006), 1576-1592.
209. On convergence of the linear extended state observer (with Dongchul Yoo, Zhiqiang Gao), *Proceedings of the 2006 IEEE International Symposium on Intelligent Control*, Munich, Germany, Oct 4-6, (2006), 1645-1650.
210. Tracking the 3-Base Periodicity of Protein-Coding Regions by the nonlinear tracking-differentiator (with Changchuan Yin and Dongchul Yoo), *45th IEEE CDC*, San Diego, Dec. (2006), 2094-2097.
211. The effects of different volatility and management fee dynamics on high water mark option pricing (with JiuHong Tang), *45th IEEE CDC*, San Diego, Dec. (2006), 6696-6701.
212. An upper estimate of integral points in real simplices with application to singularity theory (with Letian Zhang), *Math. Research Letter*, Vol. 13, No. 6 (2006), 911-922.
213. On the GLY conjecture of upper estimate of positive integral points in real right-angled simplices (with Xuejun Wang), *Journal of Number Theory*, Vol. 122, No. 1 (2007), 184-210.
214. Circuit design for Yau filter (with Yen-Tai Lai), *International Journal of Electronic*, Vol. 94, No. 2 (2007), 137-156.
215. Optimal fast tracking observer bandwidth of the linear extended state observer (with Dongchul Yoo and Zhiqiang Gao), *International Journal of Control*, Vol. 80, No. 1 (2007), 102-111.
216. From CR Geometry to Algebraic Geometry and Combinatorial Geometry (with Lixing Jia and Hing-Sun Luk), *Proceedings of the International Conference on Complex Geometry and Related Fields*, AMS/IP, *Studies in Advanced Mathematics*, Vol. 39 (2007), 109-124.
217. Periodic Solutions for a Family of Euler-Lagrange Systems (with Ovidiu Calin and Der-Chen Chang) *Asian Journal of Math.*, Vol. 11, No. 1 (2007), 69-87.
218. the Diffeomorphic types of the complements of arrangements in  $CP^3$  I: point arrangements (with Shaobo Wang), *Journal of Math. Soc. of Japan*, Vol. 59, No.2 (2007), 423-447.
219. Prediction of Primate Splice Site Using Inhomogeneous Markov Chain and Neural Network (with Libin Liu and Yee-Kin Ho), *DNA and Cell Biology*, Vol. 26, No. 7 (2007), 477-483.
220. Special solutions to some Kolmogorov equations arising from cubic sensor problems (with Ruxu Du and Lixing Jia), *Communications in Information and Systems*, Vol. 7, No. 2 (2007), 195-206.
221. Efficient Association Rule Mining among both Frequent and Infrequent Items (with Ling Zhou), *Computers and Mathematics with Applications*, Vol. 54, No.6 (2007), 737-749.
222. Kohn-Rossi cohomology and its application to the complex plateau problem II (with H.S. Luk), *Journal of Differential Geometry*, Vol. 77, No. 1 (2007), 135-148.

223. Forecasting stock market volatility using implied volatility (with Peng He), Proceedings of the 2007 American Control Conference at New York City, July (2007), 1823-1828.
224. Survey on index based homology search algorithms (with Xianyang Jiang, Peiheng Zhang and Xinchun Liu), Journal of Supercomputing, Vol. 40, No. 2 (2007), 185-212.
225. Prediction of Protein Coding Regions By the 3-Base Periodicity Analysis of a DNA Sequence (with Changchuan Yin), Journal of Theoretical Biology, Vol. 247 (2007), 687-694.
226. Classification of all finite-dimensional nonlinear filter from Lie algebraic point of view: state dimension 2 (with Xi Wu, Lixing Jia, and Amid Rasoulian), 46th IEEE CDC, New Orleans, Dec, (2007), 813-817.
227. Association rule and quantitative association rule mining among infrequent items (with Ling Zhou), Proceedings of the 8th international workshop on Multimedia data mining : (associated with the ACM SIGKDD 2007), (2007), 45-53.
228. CR equivalence problem of strongly pseudoconvex CR manifolds, Proceedings of the Third International Congress of Chinese Mathematicians, Hong Kong, December, 2004, Vol. I, (2008), 197-208.
229. Real time solution of the nonlinear filtering problem without memory II (with S.T. Yau), SIAM J. Control and Optimization, Vol. 47, No. 1 (2008), 163-195.
230. The diffeomorphic types of the complements of arrangements in  $\mathbb{C}P^3$  II (with Shaobo Wang), Science in China, Series A: Mathematics, Vol. 51, No. 4, (2008), 785-802.
231. Three methods in solving nonlinear filtering problem, Proceedings of The 4th International Congress of Chinese Mathematics, Hangzhou 2007, December 17-22, Vol. II (2007), 1-42.
232. A protein map and its application (with Chenglong Yu and Rong He), DNA and Cell Biology, Vol. 27, No. 5 (2008), 241-250.
233. Publication of the Research Institute for Mathematical Sciences (with M. Kashiwara, S. Mori, S. Mukai, K. Saito, Y.-T. Siu, B. Teissier), Special issue dedicated to Professor Heisuke Hironaka on the occasion of his 77th Birthday, May(2008), Vol. 44, No. 2.
234. A novel analysis model for DNA sequences (with Xianyang Jiang), Proceeding of International Conference on BioMedical Engineering and Informatics, May 27-30, Sanya, Hainan, China, (2008), 24-28.
235. Pricing stock options in mergers and acquisitions with jump-diffusion model (with Chaoxiao Lu), American Control conference, Seattle, Washington, June 11-13, (2008), 1008-1012.
236. Mitter conjecture for low dimensional estimation algebras in non-linear filtering (with Wen-Lin Chiou and Woei-Ren Chiueh), International Journal of Control, Vol. 81, No. 11 (2008), 1793-1805.
237. Numerical Representation of DNA Sequences Based on Genetic Code Context and Its Applications in Periodicity Analysis of Genomes (with Changchuan Yin), IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology, Sun Valley, Id, USA, Sep 15-17, 2008, 223-227
238. Coding region prediction based on a universal DNA sequence representative method (with Xianyang Jiang and Dominique Lavenier), Journal of Computational Biology, Vol. 15, No. 10 (2008), 1237-1256.
239. Real time solution of Duncan-Mortensen-Zakai equation without memory (with S.T. Yau), 47th IEEE CDC, Cancun, Mexico, Dec. (2008), 5086-5091.

240. New algorithms in real time solution of the non-linear filtering problem, *Communications in Information and systems*, Vol.8, No. 3 (2008), 303-332.
241. TCOM, an innovative data structure for mining association rule among infrequent items (with Junfeng Ding), *Computers and Mathematics with Applications*, Vol. 57 (2009), 290-301.
242. Classification of weighted dual graphs with only complete intersection singularities structures (with Fan Chung Graham and Y.-J. Xu), *Trans. Amer. Math. Soc.*, Vol. 361, No. 7 (2009), 3535-3596.
243. On formulas of Dedekind sums and the number of lattice points in tetrahedra (with Letian Zhang), *Journal of Number Theory*, Vol. 129 (2009), 1931-1955.
244. Notes on classification of toric surface codes of dimension 5 (with Huaqing Zuo), *Applicable Algebra in Engineering, Communication and Computing*, Vol. 20 (2009), 175-185.
245. Higher order Bergman functions and explicit construction of moduli space for complete Reinhardt domains (with Rong DU), *Journal of Differential Geometry*, Vol. 82 (2009), 567-610.
246. Efficient association rule and quantitative association rule mining among infrequent items (with Ling Zhou), *Rare Association Rule Mining and Knowledge Discovery: Technology for Infrequent and Critical Event Detection*, a special edition of the "Advances in Data Warehousing and Mining Series" (ADWM), July, 2009, 15-32.
247. Some Primitive Linear Groups of Prime degree (with Ming-chang Kang, Ji-ping Zhang, Jian-yi Shi and Yung Yu), *Journal of Mathematical Society of Japan*, Vol. 61, No. 4 (2009), 1013-1070.
248. Automorphism groups of the extended quadratic residue codes over  $Z_{16}$  and  $Z_{32}$  (with Chung-Lin Hsu, Wei-Liang Kuo and Yung Yu), *Rocky Mountain Journal of Mathematics*, Vol. 39, No. 6 (2009), 1947-1991.
249. A risk-neutral stochastic at-the-money implied volatility (with Peng He), *Euro-Mediterranean Economics and Financial Review*, Vol. 4, No. 2 (2009), 70-80.
250. Classification of gradient space of dimension 8 by a reducible  $sl(2, \mathbb{C})$  action (with Yung Yu and Huaqing Zuo), *Science in China, Series A Mathematics*, Vol. 52, No. 12 (2009), 2792-2828.
251. Diffeomorphic types of complements of nice point arrangements in  $\mathbb{C}P^l$  (with Fei YE), *Science in China, Series A Mathematics*, Vol. 52, No. 12 (2009), 2774-2791.
252. Geometric analysis on a family of pseudoconvex hypersurfaces (with Der-Chen Chang) *Recent Advanced in Geometric Analysis*, ALM 11(2009), 61-99.
253. Schrodinger equation with quartic potential and nonlinear filtering problem (with Der-Chen Chang and Ke-Pao Lin), *IEEE 48<sup>th</sup> CDC and 28<sup>th</sup> Chinese Control Conference*, Shanghai, P. R. China, Dec. 16-18, (2009), 8089-8094.
254. Spherical extension property no longer true for domains in algebraic variety with isolated singularity (with Shanyu Ji and Cheng Zhan), *Science China Mathematics*, Vol. 53, No.2 (2010), 257-260.
255. A rapid method for characterization of protein relatedness using feature vectors (with Kareem Carr, Eleanor Murray, Ebeneger Armah, Rong He), *PLoS ONE*, Vol. 5, issue 3 (2010), e9950, 1-10.
256. A novel construction of genome space with biological geometry (with Chenglong Yu, Qian Liang, Changchuan Yin, Rong He), *DNA Research*, Vol. 17 (2010), 155-168.
257. The second pluri-genus of smoothable Gorenstein surface singularities (with Rong Du), *Science China Mathematics*, Vol. 53, No. 3 (2010), 635-639.

258. Local holomorphic De Rham cohomology (with Rong Du), *Communications in Analysis and Geometry*, Vol. 18, No. 2 (2010), 365-374.
259. Nonholonomic systems and sub-Riemannian geometry (with Ovidiu Calin and Der-Chen Chang), *Communications in Information and Systems*, Vol. 10, No. 4 (2010), 293-316.
260. Lojasiewicz inequality for weighted homogeneous polynomial with isolated singularity (with Shengli Tan and Huaqing Zuo), *Proceeding of the Amer. Math. Soc.* Vol. 138, No. 11 (2010), 3975-3984.
261. Some finite dimensional filters derived from the structure theorem for five-dimensional estimation algebras (with Wen-Lin Chiou and Shaopu Lin), *IEEE International Conference on Control Applications, Part of IEEE Multi-conference on Systems and Control*, Yokohama, Japan, September, (2010), 304-309.
262. Explicit Construction of Moduli Space of Bounded Complete Reinhardt Domains in  $\mathbb{C}^n$  (with Rong Du and Yun Gao), *Communications in Analysis and Geometry*, Vol. 18, No. 3 (2010), 601-626.
263. Rigidity of CR morphisms between compact strongly pseudoconvex CR manifolds, *Journal of European Mathematical Society*, Vol. 13 (2011), 175-184.
264. Structure Theorem for Six-dimensional Estimation Algebras (with Yang Jiao), *49th IEEE Conference on Decision and Control*, December 15-17, 2010, Hilton Atlanta Hotel, Atlanta, GA, USA, 6991-6996.
265. DNA sequence comparison by a novel probabilistic method (with Chenglong Yu and Mo Deng), *Information Science*, Vol. 181 (2011), 1484-1492.
266. Biggest sharp polynomial estimate of integral points in right-angled simplices, (with Linda Zhao and Huaqing Zuo), *Contemporary Mathematics*, AMS, Vol. 538 (2011), 433-467.
267. A Novel Method of Characterizing Genetic Sequences: genome space with biological distance and applications (with Mo Deng, Chenglong Yu, Qian Liang, Rong L. He), *PLoS One*, Vol. 6, Issue 3, e17293, March 2011, 1-9.
268. A new distribution vector and its application in genome clustering (with Bo Zhao and Rong He), *Molecular Phylogenetics and Evolution*, Vol. 59 (2011), 438-443.
269. A note on the topology of the complements of fiber-type line arrangements in  $\mathbb{C}\mathbb{P}^2$  (with Shengli Tan and Fei Ye), *Pacific Journal of Mathematics*, Vol. 251, No.1 (2011), 207-218.
270. A novel clustering method via nucleotide-based Fourier power spectrum analysis (with Bo Zhao and Victor Duan), *Journal of Theoretical Biology*, Vol. 279 (2011), 83-89.
271. Protein map: An alignment-free sequence comparison method based on various properties of amino acids (with Chenglong Yu, ShiuYuen Cheng, Rong L. He), *Gene*, Vol. 486 (2011), 110-118.
272. Coordinate-free characterization of homogeneous polynomials with isolated singularities (with Irene Chen, Ke-Pao Lin, and Huaqing Zuo), *Communications in analysis and geometry*, Vol. 19, No. 4 (2011), 661-704.
273. New invariants for complex manifolds and isolated singularities (with Rong Du and Hing Sun Luk), *Communications in Analysis and Geometry*, Vol. 19, No. 5 (2011), 991-1021.
274. New invariants for complex manifolds, singularities, and CR manifolds with applications (with Rong Du), *Proceeding of ICCM 2010, AMS/IP Studies in Advanced Mathematics*, Vol. 51 (2012), 431-445.
275. Codes from infinitely near points (with Bruce M. Bennett and Hing Sun Luk), *Asian J. Mathematics*, Vol. 16, No. 1 (2012), 89-101.

276. Kohn-Rossi cohomology and its application to the complex plateau problem, III, (with Rong Du), *J. Differential Geometry*, Vol. 90 (2012), 251–266.
277. Lower estimate of milnor number and characterization of isolated homogeneous hypersurface singularities (with Huaqing Zuo), *Pacific J. math.*, Vol. 260, No. 1 (2012), 245–255.
278. A Novel Algorithm to Solve the Robust DMZ Equation in Real Time (with Xue Luo), 51st IEEE Conference on Decision and Control, Maui, Hawaii, Dec. 10–13, (2012), 606–611.
279. Decentralized detection in ad hoc sensor networks with low data rate inter sensor communication (with Lu Zheng, Yingwei Yao, Mo Deng), *IEEE Transactions on Information Theory*, Vol. 58, No. 5 (2012), 3215–3224.
280. Mitter conjecture and structure theorem for six-dimensional estimation algebras (with Yang Jiao and Wen-Lin Chiou), *International Journal of Control*, Vol. 86, No. 1 (2013), 146–158.
281. Sharp polynomial estimate of integral points in right-angled simplices (with Linda Zhao), *Journal of Number Theory*, Vol. 133, No. 2 (2013), 398–425.
282. Protein space: A natural method for realizing the nature of protein universe (with Chenglong Yu, Mo Deng, Shiu-Yuen Cheng, Shek-Chung Yau, Rong L. He), *Journal of Theoretical Biology*, Vol. 318 (2013), 197–204.
283. Characterization of isolated complete intersection singularities with  $C^*$ -action of dimension  $n \geq 2$  by means of geometric genus and irregularity (with Huaqing Zuo), *Communications in Analysis and Geometry*, Vol. 21, No. 3 (2013), 509–526.
284. Real Time Classification of Viruses in 12 Dimensions (with Chenglong Yu, Troy Hernandez, Hui Zheng, Shek-Chung Yau, Hsin-Hsiung Huang, Rong Lucy He, Jie Yang), *PLoS One*, Vol. 8, No. 5 (2013), 1–10.
285. Denoising the 3-Base Periodicity Walks of DNA Sequences in Gene Finding (with Changchuan Yin and Dongchul Yoo), *Journal of Medical and Bioengineering*, Vol. 2, No. 2 (2013), 80–83.
286. Nonconstant CR morphisms between compact strongly pseudoconvex CR manifolds and étale converging between resolutions of isolated singularities (with Yu-Chao Tu and Huaqing Zuo), *J. Differential Geometry*, Vol. 95 (2013), 337–354.
287. Protein sequence comparison based on K-string dictionary (with Chenglong Yu and Rong L. He), *Gene*, Vol. 529 (2013), 250–256.
288. Complete real time solution of the general nonlinear filtering problem without memory (with Xue Luo), *IEEE Transactions on Automatic Control*, Vol. 58, No. 10 (2013), 2563–2578.
289. Several splitting criteria for vector bundles and reflexive sheaves (with Fei Ye), *Pacific Journal of Mathematics*, Vol. 266, No. 2 (2013), 449–456.
290. Hermite spectral method to 1-D forward Kolmogorov equation and its application to nonlinear filtering problems (with Xue Luo), *IEEE Transactions on Automatic Control*, Vol. 58, No. 10 (2013), 2495–2507.
291. Hermite Spectral Method with Hyperbolic Cross Approximations to High-dimensional Parabolic PDEs (with Xue Luo), *SIAM J. Numer. Anal.*, Vol. 51, No. 6 (2013), 3186–3212.
292. On variance of exponents for isolated surface singularities with modality  $\leq 2$  (with Huaqing Zuo), *Science China Mathematics*, Vol. 57, No. 1 (2014), 31–41.
293. Viral genome phylogeny based on Lempel-Ziv complexity and Hausdorff distance (with Chenglong Yu, Rong Lucy He), *Journal of Theoretical Biology*, Vol. 348 (2014), 12–20.
294. K-mer natural vector and its application to the phylogenetic analysis of genetic sequences (with Wen Jia, Raymond H.F. Chan, Shek-Chung Yau, Rong L. He), *Gene*, Vol. 546, No. 1 (2014), 25–34.

295. DFA7, A New Method to Distinguish between Intron-containing and Intronless Genes (with Chenglong Yu, Mo Deng, Lu Zheng, Rong Lucy He, and Jie Yang ), PLoS ONE, Vol. 9, No. 7 (2014), 1-10.
296. A measure of DNA sequence similarity by Fourier Transform with applications on hierarchical clustering (with Changchuan Yin, and Ying Chen), Journal of Theoretical Biology, Vol. 359 (2014), 18-28.
297. K-mer sparse matrix model for genetic sequence and its applications in sequence comparison (with Jia Wen and YuYan Zhang), Journal of Theoretical Biology, Vol. 363 (2014), 145-150.
298. Global comparison of multiple-segmented viruses in 12-dimensional Genome space (with Hsin-Hsiung Huang, Chenglong Yu, Hui Zheng, Troy Hernandez, Shek-Chung Yau, Rong Lucy He, and Jie Yang), Molecular Phylogenetics and Evolution, Vol. 81 (2014), 29-36.
299. On a number-theoretic conjecture on positive integral points in a 5-dimensional tetrahedron and a sharp estimate of the Dickman-De Bruijn function (with Ke-Pao Lin, Xue Luo, and Huaiqing Zuo), Journal of the European Mathematical Society, Vol. 16 (2014), 1937-1966.
300. A sharp polynomial estimate of positive integral points in a 4-dimensional tetrahedron and a sharp estimate of the Dickman-de Bruijn function (with Xue Luo and Huaiqing Zuo), Mathematische Nachrichten, Vol. 288, No. 1 (2015), 61-75.
301. On classification of toric surface codes of low dimension (with Xue Luo, Mingyi Zhang and Huaiqing Zuo), Finite Fields and Their Applications, Vol. 33 (2015), 90-102.
302. Complete characterization of isolated homogeneous hypersurface singularities (with Huaiqing Zuo), Pacific Journal of Mathematics, Vol. 273, No. 1 (2015), 213-224.
303. Distinguishing Proteins From Arbitrary Amino Acid Sequences (with Wei-Guang Mao, Max Benson, and Rong Lucy He), Scientific Reports, Vol. 5 (2015), 1-8.
304. Plurigenera of compact connected strongly pseudoconvex CR manifolds (with Ke-Pao Lin and Huaiqing Zuo), Science China Mathematics, Vol. 58, No. 3 (2015), 525-530.
305. A new method to cluster DNA sequences using Fourier power spectrum (with Tung Hoang, Changchuan Yin, Hui Zheng, Chenglong Yu and Rong Lucy He), Journal of Theoretical Biology, Vol. 372 (2015), 135-145.
306. Time-dependent Hermite-Galerkin spectral method and its applications (with Xue Luo and Shing Tung Yau), Applied Mathematics and Computation, Vol. 264 (2015), 378-391.
307. An improved model for whole genome phylogenetic analysis by Fourier transform (with Changchuan Yin), Journal of Theoretical Biology, Vol. 382 (2015), 99-110.
308. Ebolaviruses Classification Based on Natural Vectors (with Hui Zheng, Changchuan Yin, Tung Hoang, Rong Lucy He and Jie Yang), DNA and Cell Biology, Vol. 34, No. 6 (2015), 418-428.
309. Two dimensional Yau-Hausdorff distance with applications on comparison of DNA and protein sequences (with Kun Tian, Xiaoqian Yang, Qin Kong, Changchuan Yin and Rong L. He), PLoS ONE, 2015, DOI:10.1371/journal.pone.0136577.
310. A Novel Suboptimal Method for Solving Polynomial Filtering Problems (with Xue Luo, Yang Jiao and Wen-Lin Chiou), Automatica, Vol. 62 (2015), 26-31.
311. Topological Classification of Simplest Gorenstein Non-complete Intersection Singularities of Dimension 2 (with Mingyi Zhang and Huaiqing Zuo), Asian Journal of Mathematics, Vol. 19, No. 4 (2015), 651-792.

312. Some Finite Dimensional Filters derived from the Structure Theorem for Five-dimensional Estimation Algebras (with Wen-Lin Chiou and Shaopu Lin), *Asian Journal of Math.*, Vol. 19, No. 5 (2015), 793-810.
313. On the quenching behavior of the mems with fringing field (with Xue Luo), *Quarterly of Applied Mathematics*, Vol. 73, No. 4 (2015), 629-659.
314. Interplay between CR Geometry and Algebraic Geometry (with Huaqing Zuo), *Complex Geometry and Dynamics - Proceedings of the Abel Symposium 2013, NTNU, Trondheim, Norway, July 2-5, 2013*, Vol. 10(2015), 227-258.
315. On higher dimensional complex Plateau problem (with Rong Du and Yun Gao), *Mathematische Zeitschrift*, Vol. 282(2016), 389-403.
316. On the polynomial sharp upper estimate conjecture in 7-dimensional simplex (with Beihui Yuan and Huaqing Zuo), *Journal of Number Theory*, Vol. 160 (2016), 254-286.
317. A sharp estimate of positive integral points in 6-dimensional polyhedra and a sharp estimate of smooth numbers (with Andrew Liang and Huaqing Zuo), *SCIENCE CHINA Mathematics*, Vol. 59, No. 3 (2016), 425-444.
318. Derivations of the moduli algebras of weighted homogeneous hypersurface singularities (with Huaqing Zuo), *Journal of Algebra*, Vol. 457 (2016), 18-25.
319. A new method for studying the evolutionary origin of the SAR11 clade marine bacteria (with Xin Zhao, Xiaogeng Wan and Rong L. He), *Molecular Phylogenetics and Evolution*, Vol. 98 (2016), 271-279.
320. Virus classification in 60-dimensional protein space (with Yongkun Li, Kun Tian, Changchuan Yin and Rong Lucy He), *Molecular Phylogenetics and Evolution*, Vol. 99 (2016), 53-62.
321. Recent results on rigidity of CR morphisms between compact strongly pseudoconvex CR manifolds (with Huaqing Zuo), *Proceedings of the 6th International Congress of Chinese Mathematicians (Proceeding of 2013ICCM)*, ALM36, 2016, 173-197.
322. Numerical encoding of DNA sequences by Chaos Game Representation with application in similarity comparison (with Tung Hoang and Changchuan Yin), *Genomics*, Vol. 108 (2016), 134-142.
323. Novel Suboptimal Filter via Higher Order Central Moments (with Xue Luo, Yang Jiao, and Wen-Lin Chiou), *IEEE Transactions on Aerospace and Electronic Systems*, Vol. 52, No. 4 (2016), 2030-2038.
324. A Sharp upper estimate conjecture for the Yau number of a weighted homogeneous isolated hypersurface singularity (with HUI QING ZUO), *Pure and Applied Mathematics Quarterly*, Vol. 12, No. 1 (2016), 165-181.
325. On the Sharp Polynomial Upper Estimate Conjecture in Eight-Dimensional Simplex (with Ke-Pao Lin, Andrew Yang and Huaqing Zuo), *Pure and Applied Mathematics Quarterly*, Vol. 12, No. 3 (2016), 353-398.
326. 4d N=2 SCFT and singularity theory Part II: Complete intersection (with Bingyi Chen, Dan Xie, Shing-Tung Yau and Huaqing Zuo), *Advances in Theoretical and Mathematical Physics*, Vol. 21, No. 1 (2017), 121-145.
327. Zika and flaviviruses phylogeny based on the alignment-free natural vector method (with Yongkun Li, Lily He and Rong Lucy He), *DNA and Cell Biology*, Vol. 36, No. 2 (2017), 109-116.
328. An information-based network approach for protein classification (with Xiaogeng Wan and Xin Zhao), *PloS ONE*, 12(3)(2017): e0174386.



329. Direct method for time-varying nonlinear filtering problems (with Xiuqiong Chen and Xue Luo), *IEEE Transactions on Aerospace and Electronic Systems*, Vol. 53, No. 2 (2017), 630-639.
330. A Coevolution Analysis for Identifying Protein-Protein Interactions by Fourier Transform (with Changchuan Yin), *PLoS ONE*, 12(4)(2017): e0174862.
331. Thom-Sebastiani properties of Kohn-Rossi cohomology of compact connected strongly pseudoconvex CR manifolds (with Huaiqing Zuo), *Science China Mathematics*, Vol. 60, No. 6 (2017), 1129-1136.
332. New classes of finite dimensional filters with non-maximal rank (with Ji Shi, Xiuqiong Chen and Wenhui Dong), *IEEE Control Systems Letters*, Vol. 1, No. 2 (2017), 233-237.
333. A novel alignment-free vector method to cluster protein sequences (with Lily He\*, Yongkun Li\* and Rong Lucy He), *Journal of Theoretical Biology*, Vol. 427 (2017), 41-52.
334. 4d  $N = 2$  SCFT from Complete Intersection Singularity (with Yifan Wang, Dan Xie, and Shing-Tung Yau), *Advances in Theoretical and Mathematical Physics*, Vol. 21, No. 3 (2017), 801-855.
335. Finite dimensional estimation algebras with state dimension 3 and rank 2, I: linear structure of wong matrix (with Ji Shi), *SIAM J. Control Optim.*, Vol. 55, No. 6 (2017), 4227-4246.
336. Establishing the phylogeny of *Prochlorococcus* with a new alignment-free method (with Xin Zhao\*, Kun Tian\* and Rong L. He), *Ecology and Evolution*, Vol. 7, No. 24 (2017), 11057-11065.
337. Virus Database and Online Inquiry System Based on Natural Vector (with Rui Dong, Hui Zheng, Kun Tian, Shek-Chung Yau, Weiguang Mao, Wenping Yu, Changchuan Yin, Chenglong Yu, Rong Lucy He and Jie Yang), *Evolutionary Bioinformatics*, Vol. 13 (2017), 1-7.
338. A novel fast vector method for genetic sequence comparison (with Yongkun Li, Lily He and Rong Lucy He), *Scientific Reports*, 7: 12226, DOI:10.1038/s41598-017-12493-2, (2017), 1-11.
339. Direct method for Yau filtering system with nonlinear observations (with Ji Shi and Zhiyu Yang), *International Journal of Control*, Vol. 91, No. 3 (2018), 678-687.
340. The suboptimal method via probabilists' Hermite polynomials to solve nonlinear filtering problems (with Xue Luo), *Automatica*, Vol. 94 (2018), 9-17.
341. A new method to cluster genomes based on cumulative Fourier power spectrum (with Rui Dong\*, Ziyue Zhu\*, Changchuan Yin, and Rong L. He), *Gene*, Vol. 673 (2018), 239-250.
342. A sharp lower bound for the geometric genus and Zariski multiplicity question (with Huaiqing Zuo), *Mathematische Zeitschrift*, Vol. 289 (2018), 1299-1310.
343. Suboptimal Linear Estimation for Continuous-discrete Bilinear Systems (with Xue Luo\* and Xiuqiong Chen\*), *Systems & Control Letters*, Vol. 119(2018), 92-100.
344. Convex hull analysis of evolutionary and phylogenetic relationships between biological groups (with Kun Tian\* and Xin Zhao\*), *Journal of Theoretical Biology*, Vol. 456, No. 7 (2018), 34-40.
345. Sharp Upper Estimate of Geometric Genus and Coordinate-free Characterization of Isolated Homogeneous Hypersurface Singularities (with Ke-Pao Lin, S. Raghuvanshi and Huaiqing Zuo), *Asian Journal of Mathematics*, Vol. 22, No. 4 (2018), 599-646.
346. On the derivation Lie algebras fewnomial singularities (with Naveed Hussain, and Huaiqing Zuo), *Bulletin of the Australian Mathematical Society*, Vol. 98 (2018), 77-88.

347. 4d  $N = 2$  SCFT and singularity theory Part III: Rigid singularity (with Bingyi Chen, Dan Xie, Shing-Tung Yau and Huaqing Zuo), *Advances in Theoretical and Mathematical Physics*, Vol. 22, No. 8 (2018), 1885-1905.
348. Real-time Solution of Time-varying Yau Filtering Problems via Direct Method and Gaussian Approximation (with Xiuqiong Chen and Ji Shi), *IEEE Transactions on Automatic Control*, Vol. 64, No. 4 (2019), 1648-1654.
349. Kohn-Rossi cohomology and nonexistence of CR morphisms between compact strongly pseudoconvex CR manifolds (with Huaqing Zuo), *Journal of Differential Geometry*, Vol. 111(2019), 567-580.
350. Assessment of kmer degeneration method for complicated genomes (with Shuai Liu\*, Shaojun Pei\* and Qi Wu), *Communications in Information and Systems*, Vol. 19, No. 1(2019), 17-35.
351. Whole genome single nucleotide polymorphism genotyping of *Staphylococcus aureus* (with Changchuan Yin), *Communications in Information and Systems*, Vol. 19, No. 1(2019), 57-80.
352. Virus classification based on Q-vectors (with Hui Zheng, Jie Yang and Rong L. He), *Communications in Information and Systems*, Vol. 19, No. 1(2019), 81-94.
353. Non-existence of negative weight derivations on positively graded Artinian algebras (with Hao Chen and Huaqing Zuo), *Transactions of the American Mathematical Society*, Vol. 372, No. 4 (2019), 2493-2535.
354. Protein sequence classification using natural vector and convex hull method (with Yi Wang and Kun Tian), *Journal of Computational Biology*, Vol. 26, No. 4 (2019), 315-321.
355. Complete Weight Distributions and MacWilliams Identities for Asymmetric Quantum Codes (with Chuangqiang Hu, and Shudi Yang), *IEEE Access*, Vol. 7 (2019), 68404-68414.
356. Large-scale genome comparison based on cumulative Fourier power and phase spectra: central moment and covariance vector (with Shaojun Pei, Rui Dong and Rong Lucy He), *Computational and Structural Biotechnology Journal*, Vol. 17 (2019), 982-994.
357. Comparing protein structures and inferring functions with a novel three-dimensional Yau-Hausdorff method (with Kun Tian\*, Xin Zhao\*, and Yuning Zhang), *Journal of Biomolecular Structure and Dynamics*, Vol. 37, No. 16 (2019), 4151-4160.
358. On classification of toric surface codes of dimension seven (with Naveed Hussain, Xue Luo, Mingyi Zhang and Huaqing Zuo), *Communications in Analysis and Geometry*, Vol. 28 No. 4 (2020).
359. The Non-existence of Negative Weight Derivations on Positive Dimensional Isolated Singularities: Generalized Wahl Conjecture (with Bingyi Chen, Hao Chen and Huaqing Zuo), (to appear), *Journal of Differential Geometry*, 2019.
360. High Order Linear Extended State Observer and Error Analysis of Active Disturbance Rejection Control (with Ji Shi and Xiuqiong Chen), (to appear), *Asian Journal of Mathematics*, 2019.
361. Phylogenetic analysis of protein sequences based on a novel k-mer natural vector method (with Yuyan Zhang, and Jia Wen), (to appear), *Genomics*, 2019.
362. Finite dimensional estimation algebras with state dimension 3 and rank 2, Mitter conjecture (with Ji Shi), (to appear), *International Journal of Control*, 2019.
363. Convex hull principle for classification and phylogeny of eukaryotic proteins (with Xin Zhao\*, Kun Tian\* and Rong L. He), (to appear), *Genomics*, 2019.
364. A new efficient method for analyzing fungi species using correlations between nucleotides

- (with Xin Zhao, and Kun Tian), (to appear), BMC Evolutionary Biology, 2019.
365. On the new  $k$ -th Yau algebras of isolated hypersurface singularities (with Naveed Hussain and Huaiqing Zuo), (to appear), Mathematische Zeitschrift, 2019.
366.  $k$ -th Yau number of isolated hypersurface singularities and an inequality conjecture (with Naveed Hussain and Huaiqing Zuo), (to appear), Journal of the Australian Mathematical Society, 2019.
367. A Novel Approach to Clustering Genome Sequences Using Inter-Nucleotide Covariance (with Rui Dong, Lily He and Rong Lucy He), (to appear), Frontiers in Genetics, section Bioinformatics and Computational Biology, 2019.
368. The novel classes of finite dimensional filters with non-maximal rank estimation algebra on state space dimension four and rank of one (with Wenhui Dong, and Xiuqiong Chen), (to appear), International Journal of Control, 2019.