

Hang-Chin Lai

Curriculum Vitae

Faculty of Science

National Tsing Hua University

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2014. 8. 27

PERSONAL DATA

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Date of Birth December 5, 1934



RESEARCH INTERESTS

- ◆ Mathematics Analysis
- ◆ Convex Analysis
- ◆ Harmonic Analysis
- ◆ Optimization
- ◆ Optimal Control
- ◆ Functional Analysis

EDUCATION

Oct. 1967 – Oct. 1973 Doctor of Science
Graduate School of Mathematics
Tohoku University, Japan
Mar. 1963 – Feb. 1965 Master of Science
Graduate Institute of Mathematics
National Tsing Hua University, Taiwan
Sep. 1953 – Jun. 1957 Bachelor of Science
Department of Mathematics
National Taiwan Normal University, Taiwan

PRESENT POSITIONS

Feb. 2006 – present Emeritus Chair Professor
Faculty of Science
National Tsing Hua University, Hsinchu, Taiwan

EXPERIENCE

- Aug. 2006 – Jul. 2012 Chair Professor
Department of Applied Mathematics
Chung Yuan Christian University, Taoyuan, Taiwan
- Feb. 2002 – Jul. 2006 Professor
Department of Applied Mathematics
Chung Yuan Christian University, Taoyuan, Taiwan
- Aug. 1998 – Jan. 2002 Dean of Faculty of Science and Engineering
I-Shou University, Kaohsiung, Taiwan
- Aug. 1998 – Jan. 2002 Professor
Department of Applied Mathematics
I-Shou University, Kaohsiung, Taiwan
- Aug. 1995 – Jul. 1998 Director of Academic Affair
I-Shou University, Kaohsiung, Taiwan
- Aug. 1992 – Jul. 1995 Professor
Department of Applied Mathematics
Tunghai University, Taichung, Taiwan
- Jun. 1990 – Oct. 1992 Chair Professor
Department of Mathematics
University of Cape Town, Western Cape, South Africa
- Aug. 1987 – Jun. 1988 Professor
Department of Mathematics
University of Iowa, Iowa, America
- Jan. 1983 – Mar. 1983 Visiting Professor
Department of Mathematics
National University of Singapore, Singapore, Singapore
- Apr. 1982 – Jun. 1982 Visiting Professor
Department of Mathematics
Niigata University, Niigata, Japan
- Aug. 1981 – Mar. 1982 Adjunct Professor
Department of Mathematics
Hokkaido University, Hokkaido, Japan

- Aug. 1973 – Feb. 1992 Professor
 Department of Mathematics
 National Tsing Hua University, Hsinchu, Taiwan
- Aug. 1970 – Jul. 1973 Associate Professor
 Department of Mathematics
 National Tsing Hua University, Hsinchu, Taiwan
- Feb. 1965 – Jul. 1970 Instructor
 Department of Mathematics
 National Tsing Hua University, Hsinchu, Taiwan
- Aug. 1962 – Jan. 1963 Teaching Assistant
 Department of Mathematics
 National Taiwan Normal University, Taipei, Taiwan
- Aug. 1957 – Mar. 1962 Mathematics Teacher
 National Chia-Yi Girls' Senior High School, Chiayi, Taiwan

HONORS

- 1987 Outstanding Teaching Professor Prize
National Tsing Hua University, Taiwan
- 1985 National Academic Prize in Science Division
Ministry of Education, House of Administration of Taiwan
- 1984 Golden Cauldron Prize
Bureau of News, House of Administration of Taiwan
- 1983 Chung-Shan Academic Prize in Math Science
Chung-Shan Academic Foundation
- 1974 Hsu-Shi Science Prize
Hsu-Shi Science Foundation
- 1970 Chung-Shan Academic Prize in Math Science
Chung-Shan Academic Foundation

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

- August, 2014 Invited speaker,
2013 RIMS Workshop on Nonlinear Analysis and Convex Analysis,
Kyoto University, Kyoto, Japan.
- August, 2014 Invited speaker,
ICM Satellite Conference 2014: The Fourth Asian Conference on Nonlinear
Analysis and Optimization,
National Taiwan Normal University, Taipei, Taiwan.
- December, 2013 Invited speaker,
The International Conference on Nonlinear Analysis and Optimization,
National Sun Yat-sen University, Kaohsiung, Taiwan.
- October, 2013 Invited speaker,
2013 RIMS Workshop on Nonlinear Analysis and Convex Analysis,
Kyoto University, Kyoto, Japan.
- August, 2013 Invited speaker,
The Eighth International conference on Nonlinear Analysis and Convex
Analysis, Hirosaki University, Aomori, Japan.
- January, 2013 Invited speaker,
International symposium on Nonlinear Analysis and Optimization,
Pukyong National University, Busan, Korea.
- December, 2012 Invited speaker,
Mathematical Conference and Annual Meeting of the Taiwan Mathematical
Society 2012, National Chiao Tung University, Hsinchu, Taiwan.
- November, 2012 Invited speaker,
Workshop on Nonlinear Analysis and Optimization,
National Taiwan Normal University, Taipei, Taiwan.
- November, 2012 Invited speaker,
Workshop on Nonlinear Analysis and Optimization,
Army Academy R.O.C., Taoyuan, Taiwan.
- September, 2012 Invited speaker,
The Third Asian Conference on Nonlinear Analysis and Optimization,
Shimane, Japan.

- August, 2012 Invited speaker,
International Workshop on Nonlinear Convex Analysis, RIMS 2012,
Kyoto University, Kyoto, Japan.
- July, 2012 Invited speaker,
The Eleventh Workshop on Numerical Ranges and Numerical Radii,
National Sun Yat-sen University, Kaohsiung, Taiwan.
- June, 2012 Invited speaker,
Optimization Seminar,
National Cheng Kung University, Tainan, Taiwan.
- March, 2012 Invited speaker,
Optimization Seminar,
National Taiwan University, Taipei, Taiwan.
- February, 2012 Invited speaker,
International Symposium on Nonlinear Analysis and Optimization,
Pukyong National University, Busan, Korea.
- January, 2012 Invited speaker,
Workshop on Mathematics Analysis,
National Changhua University of Education, Changhua, Taiwan.
- December, 2011 Session organizing for Analysis and Optimization,
Workshop on Nonlinear Analysis and Optimization Theory, Method
and Applications, Hsinchu, Taiwan.
- December, 2011 Organizing committee,
Mathematical Conference and Annual Meeting of the Taiwan
Mathematical Society, Taoyuan, Taiwan.
- December, 2011 Invited speaker,
Workshop on Nonlinear Analysis and Optimization, Niigata, Japan.
- December, 2011 Invited speaker,
The 5th China-Australia Workshop on Optimization Theory, Methods
and Applications, Shanghai, China.
- November, 2011 Invited speaker,
Workshop on Fixed Point Theory, Optimization and their Applications,
Kaohsiung, Taiwan.
- November, 2011 Invited speaker,

- August, 2011 Workshop on Nonlinear Analysis and Optimization, Taipei, Taiwan.
Invited speaker,
- August, 2011 Symposium on Nonlinear Analysis and Convex Analysis, Kyoto, Japan.
Invited speaker,
- August, 2011 International Symposium on Generalized Convexity and Monotonicity,
Cluj-Napoca, Romania, 2011.
Invited speaker,
- August, 2011 International Conference on Nonlinear Analysis and Convex Analysis,
Busan, Korea.
Invited speaker,
- March, 2011 International Symposium on Nonlinear Analysis and Convex Analysis,
Hualien, Taiwan.
Invited speaker,
- February, 2011 International Symposium on Nonlinear Analysis and Optimization,
Busan, Korea.
Invited speaker,
- December, 2010 International Conference on Optimization: Techniques and Applications,
Shanghai, China.
Invited speaker,
- August, 2010 Symposium on Nonlinear Analysis and Convex Analysis,
Kyoto, Japan.
Invited speaker,
- August, 2010 International Conferences on Finite or Infinite Dimensional Complex
Analysis and Applications, Macau, China.
Invited speaker,
- February, 2010 International Conferences on Optimization and its Applications,
Varanasi, India.
Invited speaker,
- February, 2010 Training Program, Delhi, India.
Invited speaker,
- February, 2010 International Symposium on Nonlinear Analysis and Optimization,
Busan, Korea.

PUBLICATIONS - PREVIEW ARTICLES

1. *A new characterization of minimax identity problem in a two-person zero-sum dynamic game system*, with J.T. Liu, RIMS Kôkyûroku, 2014. (Accepted!)
2. *Duality in minimax programming with second order (F, ρ) -convexity*, with S.C. Ho, Journal of Industrial Management Optimization, 2014.

PUBLICATIONS - REFEREED JOURNAL ARTICLES

1. *Mixed type duality for a nondifferentiable minimax fractional complex programming*, with T.Y. Huang, Pacific Journal of Optimization, 10(2), 305–319 2014.
2. *Mixed type duality on nonsmooth minimax fractional programming involving exponential (p, r) -invexity*, with S.C. Ho, Numerical Functional Analysis and Optimization, 35(11) : 1–19, 2014.
(DOI: 10.1080/01630563.2014.895754, published online: 28 Feb, 2014.)
3. *Duality for nonsmooth minimax fractional programming with exponential (p, r) -invexity*, with S.C. Ho, Journal of Nonlinear and Convex Analysis, 15(4) : 711–725, 2014.
4. *New quasi-coincidence point polynomial problems*, with Y.C. Chen, Journal of Applied Mathematics, 2013 : 959464, 2013.
(DOI: 10.1155/2013/959464, Hindawi Publishing Corporation, published online: 10 July, 2013.)
5. *A non NP-complete algorithm for a quasi-fixed polynomial problem*, with Y.C. Chen, Abstract and Applied Analysis, 2013 : 893045, 2013.
(DOI: 10.1155/2013/893045, Hindawi Publishing Corporation, published online: 24 February, 2013.)
6. *Minimax programming problem with complex variables*, with C.T. Liu, RIMS Kôkyûroku, 1841 : 1–7, 2013. (ISSN 1880-2818, Kyoto University)

7. *Minimax theorem of the ratio of expectation for a two-person zero-sum dynamic game*, with C.Y. Yu, *Journal of Nonlinear and Convex Analysis*, 14(1) : 89–101, 2013.
8. *Nonsmooth minimax fractional programming problem with exponential (p, r) -invexity*, with J.T. Liu, *RIMS Kôkyûroku*, 1821 : 1–9, 2013. (ISSN 1880-2818, Kyoto University)
9. *Minimax theorems for set-valued mappings under cone-convexities*, with Y.C. Lin and Q.H. Ansari, *Abstract and Applied Analysis*, 2012 : 310818, 2012.
(DOI: 10.1155/2012/310818, Hindawi Publishing Corporation, published online: 18 December, 2012.)
10. *Minimax theorem on a two-person zero-sum dynamic game*, with C.Y. Yu, *Journal of Nonlinear and Convex Analysis*, 13(4) : 709–720, 2012.
11. *Duality on a nondifferentiable minimax fractional programming*, with H.M. Chen, *Journal of Global Optimization*, 54 : 295–306, 2012.
(DOI: 10.1007/s-10898-010-9631-8, Springer, published online: 18 December, 2010.)
12. *Optimality and duality for nonsmooth minimax fractional programming problem with exponential (p, r) -invexity*, with S.C. Ho, *Journal of Nonlinear and Convex Analysis*, 13(3) : 433–447, 2012.
13. *Nondifferentiable minimax fractional programming in complex spaces with parametric duality*, with T.Y. Huang, *Journal of Global Optimization*, 53(2) : 243–254, 2012.
(DOI 10.1007/s10898-011-9680-7, Springer, published online: 18 February, 2010.)
14. *Optimality and duality for nonsmooth multiobjective fractional programming problems involving exponential V - r -invexity*, with S.C. Ho, *Nonlinear Analysis*, 75 : 3157–3166, 2012.
15. *Duality for a system of multiobjective problems with exponential type invexity functions*, with S.C. Ho, *Journal of Nonlinear and Convex Analysis*, 13(1) : 97–110, 2012.
16. *Approximate solutions and error bounds for a class of continuous time linear programming problems*, with C.F. Wen and Y.Y. Lur, *Optimization*, 61(2) : 163–185, 2012.
(DOI: 10.1080/02331934.2011.562292, Taylor & Francis, published online: 18 July, 2011.)

17. *A variational problem and optimal control*, with J.C. Lee and S.J. Chern, *Journal of Industrial and Management Optimization*, 7(4) : 967–975, 2011.
18. *Quasi-fixed polynomial for vector-valued polynomial functions on $\mathbb{R}^n \times \mathbb{R}$* , with Y.C. Chen, *Fixed Point Theory (Romania)*, 12(2) : 391–400, 2011.
19. *A new characterization on optimality and duality for nondifferentiable minimax fractional programming problems*, with J.C. Liu, *Journal of Nonlinear and Convex Analysis*, 12(1) : 69–80, 2011.
20. *Complex analysis methods related an optimization problem with complex variables*, with T.Y. Huang, *European Journal of Pure and Applied Mathematics*, 3(6) : 989–1005, 2010.
21. *A quasi-fixed polynomial problem for a polynomial function*, with Y.C. Chen, *Journal of Nonlinear and Convex Analysis*, 11(1) : 101–114, 2010.
22. *Optimality conditions for nondifferentiable minimax fractional programming with complex variables*, with T.Y. Huang, *Journal of Mathematical Analysis and Applications*, 359 : 229–239, 2009.
23. *Optimality conditions for a nondifferentiable minimax programming in complex spaces*, with T.Y. Huang, *Nonlinear Analysis*, 71 : 1205–1212, 2009.
24. *Duality for nondifferentiable minimax programming in complex spaces*, with J.C. Liu, *Nonlinear Analysis*, 71(12) : 224–233, 2009.
25. *Optimization theory for set functions in nondifferentiable fractional programming with mixed type duality*, with T.Y. Huang and S. Schaible, *Taiwanese Journal of Mathematics*, 12(8) : 2031–2044, 2008.
26. *Minimax fractional programming for n -set functions and a mixed type duality under generalized invexity*, with T.Y. Huang, *Journal of Optimization Theory and Applications*, 139 : 295–313, 2008.
27. *Complex minimax fractional programming of analytic functions*, with J.C. Liu and S. Schaible, *Journal of Optimization Theory and Applications*, 137 : 171–184, 2008.
28. *Duality of fractional integral programming with generalized invexity*, *RIMS Kôkyûroku*, 1544 : 111–118, 2007.

29. *Sufficiency and duality of variational fractional programming with generalized invexity*, Taiwanese Journal of Mathematics, 10(6) : 1685–1695, 2006.
30. *Parametric duality on minimax programming involving generalized convexity in complex spaces*, with J.C. Lee and S.C. Ho, Journal of Mathematical Analysis and Applications, 323 : 1104–1115, 2006.
31. *Mixed type duality in mathematical programming involving generalized convex set functions*, RIMS Kôkyûroku, 1415 : 1–10, 2005.
32. *Complex fractional programming and the Charnes-Cooper transformation*, with J.C. Chen and S. Schaible, Journal of Optimization Theory and Applications, 126(1) : 203–213, 2005.
33. *Parameter-free dual models for fractional programming with generalized invexity*, with J.C. Lee, Annals of Operations Research, 133 : 47–61, 2005.
34. *Optimality conditions for minimax programming of analytic functions*, with J.C. Chen, Taiwanese Journal of Mathematics, 8(4) : 673–686, 2004.
35. *On a dynamic fractional game*, Journal of Mathematical Analysis and Applications, 294 : 644–654, 2004.
36. *Fractional programming for variational problem with (F, ρ, θ) -invexity*, Journal Nonlinear and Convex Analysis, 4(1) : 25–41, 2003.
37. *Minimax fractional programming involving generalized invex functions*, with J.C. Liu, Australian and New Zealand Industrial and Applied Mathematics Journal, 44 : 339–354, 2003.
38. *Optimization Analysis involving set functions*, with J.C. Chen, Applied Mathematics E-Notes, 2 : 78–97, 2002.
39. *Nondifferentiable fractional programming in complex spaces involving (L, ρ, θ) -convex analytic functions*, with J.C. Liu, Indian Journal of Pure and Applied Mathematics, 33 : 917–932, 2002.
40. *On duality theorems for a nondifferentiable minimax fractional programming*, with J.C. Lee, Journal of Computational and Applied Mathematics, 146 : 115–126, 2002.

41. *On a dynamic fractional game*, RIMS Kôkyûroku, , 1298 : 151–160, 2002.
42. *Complex fractional programming involving generalized quasi/pseudo convex functions*, with J.C. Liu, Zeitschrift für Angewandte Mathematik und Mechanik, 82 : 159–166, 2002.
43. *Duality for fractional complex programming with generalized convexity*, with J.C. Lee and J.C. Liu, Journal of Nonlinear and Convex Analysis, 2 : 175–191, 2001.
44. *Semilocally convex programming in ordered vector spaces*, with J.C. Lee, Tamsui Oxford Journal of Mathematical Sciences, 16(2) : 151–168, 2000.
45. *On minimax fractional programming of generalized convex set functions*, with J.C. Liu, Journal of Mathematical Analysis and Applications, 244 : 442–465, 2000.
46. *Necessary and sufficient conditions for minimax fractional programming*, with J.C. Liu and K. Tanaka, Journal of Mathematical Analysis and Applications, 230 : 311–328, 1999.
47. *Duality for a minimax programming problem containing n -set function*, with J.C. Liu, Journal of Mathematical Analysis and Applications, 229 : 587–604, 1999.
48. *Duality without a constraint qualification for minimax fractional programming*, with J.C. Liu and K. Tanaka, Journal of Optimization Theory and Applications, 101(1) : 109–125, 1999.
49. *Generalized gradients and mean value theorems in Banach space*, with J.W. Chen and P.C. Liu, Far East Journal of Mathematical Sciences, 1(1) : 1–16, 1999.
50. *Integral functional and Euler-Lagrange inclusion*, RIMS Kôkyûroku, 1031 : 14–28, 1998.
51. *Variational problem related optimal control*, with J.W. Chen, Proceedings of the National Science Council (Part A: Physical Science and Engineering), 22(2) : 163–170, 1998.
52. *Optimality conditions for multiobjective programming with generalized (τ, ρ, θ) -convex set functions*, with J.C. Liu, Journal of Mathematical Analysis Applications, 215 : 443–460, 1997.
53. *Optimality conditions of semi-invex programming*, Taiwanese Journal of Mathematical, 1(4) : 389–404, 1997.

54. *On the generalized Euler-Lagrange equations*, with J.W. Chen, *Journal of Mathematical Analysis Applications*, 213 : 681–697, 1997.
55. *Multiobjective programming of set functions*, *RIMS Kôkyûroku*, 985 : 118–131, 1997.
56. *Upper limit of sets and continuous mappings*, with J.C. Lee, *Far East Journal of Mathematical Sciences*, 5(4) : 505–514, 1997.
57. *Moreau-Rockafellar type theorems for nonconvex and non-locally Lipschitz integral functional on $L^p(T, X)$* , with J.W. Chen, *Optimization*, 39 : 103–122, 1997.
58. *Moreau-Rockafellar model type theorems for generalized subgradient operators*, with J.W. Chen, *Nihonkai Mathematical Journal*, 7(2) : 155–176, 1996.
59. *Mathematical model on vector-valued decision systems*, *Tunghai Science*, 36(2) : 117–125, 1995.
60. *Multipliers in vector-valued function spaces under convolution*, with J.C. Candeal, *Acta Mathematica Hungarica*, 67(3) : 175–192, 1995.
61. *On p -summable functional representations for linear operators*, *Soochow Journal Mathematical*, 20(4) : 489–505, 1994.
62. *Linear programming in measure spaces*, *Optimization*, 29 : 141–156, 1994.
63. *Alternative theorems and saddlepoint results for convex programming problems of set function with values in ordered vector spaces*, with P. Szilagyi, *Acta Mathematica Hungarica*, 63(3) : 231–241, 1994.
64. *Optimization for integral functions and Euler-Lagrange*, *Tunghai Science*, 34 : 821–836, 1993.
65. *Convergent theorems and L^p -selections for Banach-valued multifunctions*, with J.C. Lee, *Nihonkai Mathematical Journal*, 4(2) : 163–180, 1993.
66. *Integration theory for Banach-valued multifunctions*, with J.C. Lee, *Indian Journal of Mathematics*, 34 : 265–284, 1992.
67. *Multipliers in continuous vector-valued function spaces*, with J.C. Candeal, *Bulletin Australian Mathematical Society*, 46(2) : 199–204, 1992.

68. *On linear semi-infinite programming problems: An algorithm*, with S.Y. Wu, *Numerical Functional Analysis and Optimization*, 13 : 3–4, 1992.
69. *Some properties of Fourier transform for operators on homogeneous Banach spaces*, with C.H. Chen, *Hokkaido Mathematical Journal*, 21 : 259–271, 1992.
70. *Extremal points and optimal solutions for general capacity problems*, with S.Y. Wu, *Mathematical Programming (Series A)*, 54 : 87–113, 1992.
71. *Optimality conditions for Lipschitz functions on Banach space*, *Nihonkai Mathematical Journal*, 2 : 99–115, 1991.
72. *Average-time criterion for vector-valued Markovian decision systems*, with K. Tanaka, *Nihonkai Mathematical Journal*, 2 : 71–91, 1991.
73. *On continuous-time discounted stochastic dynamic programming*, with K. Tanaka, *Journal of Applied Mathematics & Optimization*, 23 : 155–169, 1991.
74. *Optimization for integral functionals*, *Numerical Functional Analysis and Optimization*, 10 : 1139–1159, 1989.
75. *Optimality for set functions with values in ordered vector spaces*, with L.J. Lin, *Journal of Optimization Theory and Applications*, 63 : 371–389, 1989.
76. *A necessary and sufficient condition of convex multiobjective programming*, with J.C. Liu, *Tamkang Journal Mathematics*, 20(1) : 7–17, 1989.
77. *Strong duality for infinite-dimensional vector-valued programming problems*, with L.S. Yang, *Journal of Optimization Theory and Applications*, 62 : 449–466, 1989.
78. *Multipliers and translation invariant operators*, with T.K. Chang, *Tohoku Mathematics Journal*, 41 : 31–41, 1989.
79. *Moreau-Rockafellar type theorem for convex set functions*, with L.J. Lin, *Journal Mathematics Analysis Applications*, 132 : 558–571, 1988.
80. *The Fenchel-Moreau theorem for set functions*, L.J. Lin, *Proceedings of the American Mathematical Society*, 103(1) : 558–571, 1988.

81. *An N -person noncooperative discounted vector-valued dynamic game with a metric space*, with K. Tanaka, *Applied Mathematics & Optimization*, 16 : 135–146, 1987.
82. *A vector-minimization problem in a stochastic continuous-time n -person game*, with K. Tanaka, *Journal Nonlinear and Convex Analysis*, 107 : 151–165, 1987.
83. *An n -person noncooperative discounted vector valued dynamic game with a stopped set*, with K. Tanaka, *Journal Computational Mathematics Applications*, 13(1–3) : 227–237, 1987.
84. *On the linear algebra of generalized stochastic matrices and their equivalent relation and permutation basis*, *Japan Journal Applications Mathematics*, 3(2) : 367–379, 1986.
85. *Secant method for operator equations on Banach space*, with C.Y. Lee, *Mathematics Japonica*, 31(5) : 721–739, 1986.
86. *Duality theorem of nondifferentiable convex multiobjective programming*, with C.P. Ho, *Journal of Optimization Theory and Applications*, 50(3) : 407–420, 1986.
87. *On the multipliers of the p -class Banach algebras in H^* -algebra*, with Y.C. Yeh, *Tamkang Journal of Mathematics*, 17 : 71–85, 1986.
88. *On a D -convex solution of a cooperative m -person discounted Markov game*, with K. Tanaka, *Journal of Mathematical Analysis and Applications*, 115 : 578–591, 1986.
89. *Duality of Banach function spaces and Radon Nikodym property*, *Acta Mathematica Hungarica*, 47(1–2) : 45–52, 1986.
90. *Multipliers of Banach valued function spaces*, *Journal Australian Mathematics Society (Series A)*, 39 : 51–62, 1985.
91. *Convex programming on spaces of measurable functions*, with S. Koshi and N. Komuro, *Hokkaido Mathematical Journal*, 14 : 75–84, 1985.
92. *Multipliers for some spaces of Banach algebra valued functions*, *Rocky Mountain Journal of Mathematics*, 15 : 157–166, 1985.
93. *On an n -person noncooperative Markov game with a metric state space*, with K. Tanaka, *Journal of Mathematical Analysis and Applications*, 101 : 78–96, 1984.

94. *A noncooperative n -person semi-Markov game with a separable metric state space*, with K. Tanaka, *Applied Mathematics & Optimization*, 11 : 23–42, 1984.
95. *Conjugate operators and subdifferentials for convex operators in ordered vector spaces*, *Soochow Journal of Mathematics*, 9 : 127–135, 1983.
96. *Duality in mathematical programming of set functions: On Fenchel duality theorem*, with S.S. Yang and G.R. Hwang, *Journal of Mathematical Analysis and Applications*, 95 : 233–234, 1983.
97. *A note on non-cooperative N -person game with a stopped set*, with T.S. Cheng, *Soochow Journal of Mathematics*, 8 : 31–36, 1982.
98. *Multiplier algebra of C^* -envelope and the C^* -envelope of a multiplier algebra*, *Proceedings of the Japan Academy (Series A)*, 58 : 365–368, 1982.
99. *Error bounds of Newton type process on Banach spaces*, with P.Y. Wu, *Numerische Mathematik*, 39 : 175–193, 1982.
100. *Saddle point and duality in the optimization theory of convex set functions*, with S.S. Yang, *Journal of the Australian Mathematical Society (Series B)*, 24 : 130–137, 1982.
101. *A two-person zero-sum Markov game with a stopped set*, with K. Tanaka, *Journal of Mathematical Analysis and Applications*, 86 : 54–68, 1982.
102. *Non-cooperative n -person game with a stopped set*, with K. Tanaka, *Journal of Mathematical Analysis and Applications*, 85 : 153–171, 1982.
103. *The ranges of set functions*, with S. Koshi, *Hokkaido Mathematical Journal*, 10 : 348–360, 1981.
104. *Harmonic analysis on the Fourier algebras $A_{1,p}(G)$* , with I.S. Chen, *Journal of Australian Mathematical Society (Series A)*, 30 : 438–452, 1981.
105. *Numerical ranges of the tensor products of elements*, with F.B. Yeh, *Hokkaido Mathematical Journal*, 7 : 214–223, 1978.
106. *Unique continuation for symmetric hyperbolic systems of first order with discontinuous coefficients*, *Yokohama Mathematical Journal*, 26 : 61–68, 1978.

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107. *Banach algebras which are ideals in a Banach algebra*, Bulletin of the Institute of Mathematics Academia Sinica, 3 : 383–389, 1975.
 108. *Multipliers of Lorentz spaces*, with Y.K. Chen, Hokkaido Mathematical Journal, 4 : 248–260, 1975.
 109. *Restrictions of Fourier transforms on A^p* , Tohoku Mathematical Journal, 26 : 453–460, 1974.
 110. *Multipliers of a Banach algebra in the second conjugate algebra as an idealizer*, Tohoku Mathematical Journal, 26 : 431–452, 1974.
 111. *Estimations of maximal operators for fractional order K* , with L.J. Lin, Tamkang Journal of Mathematics, 4 : 175–186, 1973.
 112. *Isomorphism theorem of the spaces $L^p(G)$* , with M.C. Lien, Chinese Journal of Mathematics, 1 : 167–173, 1973.
 113. *The Fourier transformations of closed operators on a dense subspace of $L^1(G)$* , Mathematica Japonicae, 17 : 135–147, 1972.
 114. *Exponential decay of weak solutions for hyperbolic systems of first order with discontinuous coefficients*, Transactions of the American Mathematical Society, 170 : 425–436, 1972.
 115. *A characterization of the multipliers of Banach algebra*, Yokohama Mathematical Journal, 20 : 45–50, 1972.
 116. *On the multipliers of $A^p(G)$ -algebras*, Tohoku Mathematical Journal, 23 : 641–662, 1971.
 117. *Remarks on $A^p(G)$ -algebras*, Proceedings of the Japan Academy, 46 : 58–63, 1970.
 118. *On the category of $L^1 \cap (G)L^p(G)$ in $A^q(G)$* , Proceedings of the Japan Academy, 45 : 577–581, 1969.
 119. *On some properties of $A^p(G)$ -algebras*, Proceedings of the Japan Academy, 45 : 572–576, 1969.

PUBLICATIONS - PROCEEDINGS ARTICLES

1. *Mixed type duality for a nondifferentiable minimax fractional complex programming*, with T.Y. Huang, Proceedings of the Third Asian Conference on Nonlinear Analysis and Optimization, 211–217, 2014.
(Matuse, Japan, 2012, ISBN: 978-4-946552-49-6, Yokohama Publishers)
2. *Mixed type duality for nonsmooth minimax fractional programming involving exponential (p,r) -invexity*, with S.C. Ho, Proceedings of the Third Asian Conference on Nonlinear Analysis and Optimization, 63–72, 2014.
(Matuse, Japan, 2012, ISBN: 978-4-946552-49-6, Yokohama Publishers)
3. *A rational quasi-fixed (point) polynomial problem*, with C.Y. Chen, Proceedings of the Third Asian Conference on Nonlinear Analysis and Optimization, 35–40, 2014.
(Matuse, Japan, 2012, ISBN: 978-4-946552-49-6, Yokohama Publishers)
4. *Optimality conditions for multiobjective fractional programming and parametric duality exponential V - r -invexity*, with S.C. Ho, Proceedings of the 7th International Conference on Nonlinear Analysis and Convex Analysis I, 313–319, 2013.
(Busan, Korea, 2011, Yokohama Publishers)
5. *Quasi-fixed polynomial solutions of real-valued polynomial equation*, with Y.C. Chen, Fixed Point Theory and its Applications, Changhua, Taiwan, 27–37, 2010.
6. *Duality on a nondifferentiable minimax fractional programming*, with H.M. Chen, Lecture Notes in Decision Sciences - Global Optimization: Theory, Methods & Applications I, 12(A) : 81–86, 2009.
7. *Optimization theory for set functions related to duality theorems on fractional set functions*, 37th Annual Iranian Mathematics Conference, 586–589, 2006.
8. *Fractional programming for variational problem with generalized invexity*, Proceedings of the 2nd International Conference on Nonlinear Analysis and Convex Analysis, Aomori, Japan, 247–255, 2003.
9. *Conditions for zero duality gap of nonconvex programming*, with J.C. Chen, Proceedings of the 6th World Multiconference on Systemics, Florida, America, 16 : 1–6, 2002.

10. *Programming problem involving generalized convex set functions*, Proceedings of the International Conference on Nonlinear Analysis and Convex Analysis, Niigata, Japan, 34–43, 1999.
11. *Subdifferential and conjugate functions for integral functionals*, Proceedings of the International Workshop in Analysis Its Applications, Novi Sad, Yugoslavia, 205–271, 1991.
12. *Generalized gradient for integral functionals*, Proceedings of International Symposium on Functional Analysis and Related Topics, Japan, 117–126, 1991.
13. *Differentiability and duality for integral functions*, Proceedings of the International Conference on Nonlinear Functional Analysis and Its Applications, Taipei, Taiwan, 61–83, 1991.
14. *Translation invariant operators and multipliers of Banach-valued function spaces*, Proceedings of analysis Conference, Singapore, Singapore, 151–162, 1988.
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DOCTOR COMMITTEES

Advisee	Degree	School	Year
Jen-Tang Liu		Chung Yuan Christian University	Enrollment
Cheng-Te Liu		Chung Yuan Christian University	Enrollment
Chao-Ya Yu	Ph. D.	Chung Yuan Christian University	2012
Yi-Chou Chen	Ph. D.	Chung Yuan Christian University	2010
Tone-Yau Huang	Ph. D.	Chung Yuan Christian University	2009
Jia-Wen Chen	Ph. D.	National Tsing Hua University	1991
Jin-Chirng Lee	Ph. D.	National Tsing Hua University	1990
Lai-Ju Lin	Ph. D.	National Tsing Hua University	1986

MASTER COMMITTEES

Advisee	Degree	School	Year
Ta-Yu Ho	Master	Chung Yuan Christian University	2013
Jen-Tang Liu	Master	Chung Yuan Christian University	2012
Wen-Pi Chen	Master	Chung Yuan Christian University	2008
Chih-Sheng Hung	Master	Tunghai University	1997
Tao-Ping Huang	Master	National Tsing Hua University	1996
Shuenn-Yn Chiou	Master	Tunghai University	1995
Shin-Yeu Chang	Master	Tunghai University	1995
Li-Way Weng	Master	National Tsing Hua University	1994
Guan-Zhou Chen	Master	Tunghai University	1993
Chen-Hsiang Chen	Master	National Tsing Hua University	1991
Xing-Xin Dai	Master	National Tsing Hua University	1991
Fang-Yu Huang	Master	National Tsing Hua University	1990
Yun-Hong Liao	Master	National Tsing Hua University	1990
Yan-Cheng Lin	Master	National Tsing Hua University	1988
Wen-De Gao	Master	National Tsing Hua University	1988
Tsu-Kung Chang	Master	National Tsing Hua University	1987
Xue-Wen Yu	Master	National Tsing Hua University	1987
Lian-Xiang Yang	Master	National Tsing Hua University	1987
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Zao-Bao He	Master	National Tsing Hua University	1985
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Zun-Yi Li	Master	National Tsing Hua University	1984
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Gui-Fang Zhang	Master	National Tsing Hua University	1982
Zi-Qiang Wu	Master	National Tsing Hua University	1980
Zhen-Yu Shi	Master	National Tsing Hua University	1980
Hung-Ju Kuo	Master	National Tsing Hua University	1979
Kuo-Chung Wu	Master	National Tsing Hua University	1978
Shih-Ping Tung	Master	National Tsing Hua University	1978
Bo-Ya Wu	Master	National Tsing Hua University	1977
Ying-Sheng Chen	Master	National Tsing Hua University	1977
Ta-Yuan Huang	Master	National Tsing Hua University	1977
Chen-Hui Yen	Master	National Tsing Hua University	1976
Fang-Po Yeh	Master	National Tsing Hua University	1976
Yen-Kun Chen	Master	National Tsing Hua University	1974
Lai-Ju Lin	Master	National Tsing Hua University	1974
Ming-Chiao Lien	Master	National Tsing Hua University	1972