

CURRICULUM VITAE

Name Chuang ZHENG

Sex Male

Birth (date and place) April, 1982, Sichuan, China

Marital Status Married, 2 children.

Present Address School of Mathematics,
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Beijing Normal University,
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Education

2002	B.S.,	Mathematics,	Sichuan University (China)
2005	M.S.,	Applied Mathematics,	Universidad Autónoma de Madrid (Spain)
2008	Ph.D.,	Applied Mathematics,	Universidad Autónoma de Madrid (Spain)

Ph.D. Dissertation: “Control of Time-discrete Approximation Schemes
for Partial Differential Equations”.

Major Professor: Enrique ZUAZUA

Professional Experiences

- 2007.1–2007.7 Issac Newton Institute, Cambridge University, UK.
2008.9–present School of Mathematics, Beijing Normal University,
Beijing, China.
2010.10–2010.12 Institut Heri Poincaré, Paris, France.
2013.07.01-07.30 Benasque Center of Applied Mathematics,
Bilbao, Spain.
2013.11-2014.10 Department of Mathematics and Statistics,
Missouri University of Science and Technology, MO, US
2014.02-2014.03 Department of Mathematical science,
University of Cincinnati, OH, US
2014.05-2014.06 Department of Mathematics,
University of Southern California, LA, US
2017.07-2017.07 Department of Mathematics, Universidad Autónoma de Madrid, ■
Madrid, Spain

Main Research Interests

Control problems of partial differential equations, Inverse problems,
Fourier Analysis, Schrödinger equations, Harmonic analysis,
Optimal control and Numerical experiment.

Research Grants

- 2003.9-2007.8 Full Scholarship of Spanish Education Ministry.
2007.1-2007.7 Scholarship of “Estancia Breve” of Spanish Education Ministry.
2011.1-2013.12 National Natural Science Foundation of China.
2011.1-2013.12 Foundation of Ministry of Education of China.
2013.11-2014.10 State Scholarship Fund of China Scholarship Council.
2014.1-2015.12 Research Funds for the Central Universities of China.

Participant of programs

- 2003-2006 Analysis, control and numerical simulation in heterogeneous media and
the iteration fluid-structure. No. BFM2002-03345. (Principal Investigator, E. Zuazua.)
2006-2008 Analysis, numerical approximation and optimal design of the partial
differential equations. No. MTM2005-00714. (Principal Investigator, E. Zuazua.)
2011-2013 Mechanic systems on Biomodels. Fundamental Research Funds for the
Central Universities of China. (Principal Investigator, X. Li.)

Teaching Classes

2008.9-2009.7	Calculus A. Undergraduate course
2009.9-2010.7	Calculus B. Undergraduate course
2011.2-2011.7	Spectral methods: Applications on PDEs. Graduate course
2012.9-2013.7	Calculus A. Undergraduate course
2013.2-2013.7	Controllability and observability of PDEs. Graduate course
2015.2-2015.7	Calculus A. Undergraduate course
2015.9-2016.7	Calculus A. Undergraduate course
2015.9-2016.1	Introduction of control theory. Graduated course
2016.2-2016.7	Optimal control theory. Graduate course
2016.9-2017.1	Linear Algebra. Undergraduate course
2016.9-2017.1	Introduction of control theory. Graduated course
2017.2-2017.7	Optimal control theory. Graduate course
2017.9-2018.7	Calculus A. Undergraduate course
2017.9-2018.1	Introduction of control theory. Graduated course
2018.9-2019.7	Calculus A. Undergraduate course
2018.9-2019.1	Introduction of control theory. Graduated course

Articles and preprints

- Uniform Controllability of the $1 - d$ Semi-discrete Heat Equation, with E. Zuazua. For Master thesis (Diploma Estudio Avanzada).
- Nonlinear Differential Equation Methods in Image Processing, with J. -L. Vázquez. For Master thesis (Diploma Estudio Avanzada).
- Controllability of the Time discrete Heat Equation. *Asymptot. Anal.* 59 (2008), no. 3-4, 139–177.
- On the Observability of Time-discrete Linear Conservative Systems, with S. Ervedoza and E. Zuazua. *J. Funct. Anal.* 254 (2008), no. 12, 3037–3078.
- Exact Controllability of Time Discrete Wave Equation: a multiplier approach, with X. Zhang and E. Zuazua. *Discrete Contin. Dyn. Syst.* 23 (2009), no. 1-2, 571–604.
- Boundary Observability of Time discrete Schrödinger Equations. *Int. J. Mathematical Modelling and Numerical Optimisation*, Vol. 1, Nos. 1/2, 2009, 128–145
- Exact Controllability of Time Discrete Wave Equation: Boundary Observability and Control, with X. Zhang and E. Zuazua. *Applied and numerical partial differential equations*, 229 – 245, *Comput. Methods Appl. Sci.*, 15, Springer, New York, 2010.

- Symmetry Reduced and Exact Non-traveling Wave Solutions of the (2+1)-D GSWW Equation, with G. Xiao and D. Xian. 986-990, International Conference on Information Science and Technology, March 26-28, 2011 Nanjing, Jiangsu, China.
- Exact controllability for the fourth order Schrödinger equation, with Z. Zhou. *Chin. Ann. Math. Ser. B* 33 (2012), no. 3, 395-404.
- Control Problems on Differential Equations. Chapter 18 of “Mathematical Modeling with Multidisciplinary Applications”, John Wiley & Sons, 2013.
- Inverse Problems for the Fourth Order Schrödinger equation on a finite domain. *Mathematical Control and Related Fields*. Vol.5 No. 1. 2015, 177-189.
- Controllability of Hopfield Impulsive Neural Network Systems with Infinite Delay in Banach Spaces, with J. Tang. The 34th CCC&SICE 2015, 6 pages.
- On stabilization of a class of nonlinear systems with quantized feedback. With C. Li and L. Li. The 7th ICICIP, 2016, Siem Reamp, Cambodia.
- Controllability of a simplified repairable system. with F. Wei and W. Hu. The 31th YAC, 2016. Wuhan, China.
- How much information is needed in quantized nonlinear control? with L. Li, L. Wang and L. Li. *Scienc China. Information Sciences*. Sept 2018. Vol 61, 092205.
- Optimal control of a SEIRS epidemic model with vaccination and treatment. with L. Guo and Y. Zhang, The 37th CCC, 2018.
- Optimal impulse control of a simple repairable system in a nonreflexive Banach space. with H. Xu, R. Lai and W. Hu, Submitted.
- IBVP problem for the biharmonic Schrödinger equation. with J. Li. Preprint.

Invited talks

- Partial Differential Equations, Optimal Design and Numerics. Summer school and workshop, Benasque, Spain, 28 August–9 September, 2005.
- CIMPA. School on Optimization and Control. Castro Urdiales, Cantabria, Spain, 28 of August–8 of September, 2006.
- Highly Oscillatory Problems: Computation, Theory and Application. Issac Newton Institute, Cambridge, 15 January–6 July 2007.
- Mathematical Modelling & Numerical Simulation in Science and Technology, Castro Urdiales, Cantabria, Spain, 16–20 July 2007.
- Partial Differential Equations, Optimal Design and Numerics. Benasque, Spain, 27 August– 7 September, 2007.

- Control Theory of Partial Differential Equations. Wuhan, China, 13 –14 July, 2010.
- Control of Partial and Differential Equations and Applications Trimester. Institute of Henri Poincaré, Paris, France, 1 October – 18 December, 2010.
- Conference for Young Researchers: Control Theory and Applications. Changchun, China, 25 –29 July, 2011.
- The 5th conference of Partial Differential Equations, Optimal Design and Numerics. Benasque, Spain, 25 August – 4 September, 2013.
- Conference of control theory and its applications for young researchers, Guiyang, China, 27–30 July, 2015.
- The 8th International Congress on Industrial and Applied Mathematics, Beijing, China, 10 –14 August, 2015.
- International conference on PDEs: control, numerics and stochastics, Chengdu, China, 24 – 27 July, 2016.
- The 8th Conference of control theory and its applications for young researchers, Chengdu, China, 28 – 30 July, 2016.
- 2016 Youth Academic Annual Conference of Chinese Association of Automation, Wuhan, China, 11 – 13 November, 2016.
- Seventh International Conference on Intelligent Control and Information Processing, Angkor, Cambodia, 1 – 4 December, 2016.
- 2016 Conference of Applied Mathematics for Universities in Beijing, Beijing, China, 11 December, 2016.
- Seminar on controls of distributed parameter systems, Tianjin, China, 7 – 8 January, 2017.
- Seminar on control problems of evolutionary equations, Changchun, China, 16 – 18 January, 2017.
- The 9th Conference of control theory and its applications for young researchers, Xiangtan, China, 10–12 July, 2017.
- Seminar on controls and numerics of PDEs, Chengdu, China, 17 – 21 July, 2017.
- The 7th Conference of Partial Differential Equations, Optimal Design and Numerics. Benasque, Spain, 20 August – 2 September, 2017.

- Conference of mathematical controls, Chengdu, China, 24 – 27 November, 2017.
- Invited report at Shandong University, Jinan, China, 24 May, 2018.
- The Second International Conference on Mathematical Characterization, Control, Analysis and Applications of Complex Information and System, Beijing, China, 30 June – 1 July, 2018.
 - The 37th China Control Conference, Wuhan, China, 25 – 27 July, 2018.
 - Chinese Mathematical Society Annual Conference, Guizhou, China, 20 – 21 October, 2018.

Organization of conferences

- Organizer of the conference “Conference of Applied Mathematics for Universities in Beijing”, Beijing, December 11, 2016.
- Organizer of the conference “The Second Conference of Applied Mathematics for Universities in Beijing”, Beijing, December 8 – 11, 2017.

Updated: June 30, 2018.