

John Li

CONTACT INFORMATION *E-mail:* lijohn@usc.edu
Web: www.Magic4Hope.org/johnli/

NOTABLE TITLE NSF Fellow, McNair Scholar

RESEARCH INTERESTS **Theoretical physics:**
Chaos/Nonlinear dynamics; Quantum Information; Numerical Analysis; Theory axiomatization; Visualization of physics; Physics/Math Education;

EDUCATION **University of Southern California**, Los Angeles, CA USA

Ph.D Physics May. 2013– ???
Dean’s list Fall 2015

University of California, Merced, Merced, CA USA

B.S. with High Honors, Physics Aug. 2009– May 2013
B.S. with High Honors, Applied Mathematics Aug. 2009– May 2013
→ Grossman Award 2013 (best math student of the year)
GRE Physics: 880
Overall GPA: 3.897 Major GPA 4.00
Dean’s honor list 2009-2013
Chancellor’s honor list 2009-2013

Relevant Courses (Completed credits: 169.8)

Analytic Mechanics	Quantum Mechanics
Special Relativity	Electrodynamics
Condensed Matter Physics	Astrophysics and Cosmology
Statistical Mechanics	Atomic structure
Wave and Vibration	Thermal Physics Core
Electromagnetic Radiation	Modern Physics Lab
Fluid Mechanics	[Graduate] Quantum Mechanics
Mathematical Logic	Group Theory
Numerical Analysis I	Numerical Analysis II
[Graduate] Numerical Analysis	Linear Analysis I
Real Analysis	Complex Variables
Mathematical Modeling	Differential Equations
Partial Differential Equations	Probability & Statistics

RESEARCH **University of Southern California**, Los Angeles, CA USA
Parallelize Human Intelligence and Computation in Science 2015-present

University of California, Merced, Merced, CA USA

Nonlinear Dynamical System Research with Dr. K. Mitchell on BIM theory 2012-2013

Numerical Independent study with Dr. O. Umrhan on MW-Map 2011-2013

California Institute of Technology, Pasadena, CA USA

Research (SURF): Back-action evasion measurement with Dr. K. Schwab,
Co-mentor Dr. J. Suh. 2011 Summer

- Theoretical: Transformed/verified Kalman filter algorithm to FPGA device
- Experimental: Setting up various lab equipment

CONFERENCE AND PRESENTATIONS “Matched Bipartite Digraph Representation of Generalized Dynamical System Formed by One-way Barriers”, APS March Meeting 2014, Oral presenter, Denver, Colorado, Mar. 3-7, 2014

“Burning Invariant Manifold Theory and the Bipartite Digraph Representation of Generalized Dynamical System Formed by One-way Barriers”, 66th Annual Meeting of the APS Division of Fluid Dynamics, Oral presenter, Pittsburgh, Pennsylvania, Nov. 24-26, 2013

“The Theory of Basins of Attraction for Burning Invariant Manifold Theory of a Metric Space Partitioned by One-way Barriers”, Canadian-American-Mexican Graduate Student Physics Conference, Oral presenter, Waterloo Canada, Aug. 15-18, 2013

“Pinning Fronts in Advection-Reaction-Diffusion Systems: a Dynamical Systems Approach”, UC Merced Physics Department Senior Thesis Presentation, Oral presenter, Merced CA, May 3, 2013

“Pinning Fronts in Advection-Reaction-Diffusion Systems: a Dynamical Systems Approach”, 34th Annual Central California Research Symposium, Oral presenter, Fresno CA, April 25, 2013

“The Theory of Basins of Attraction for Burning Invariant Manifold Theory—Topological Ordering of Accessibility and Convergence of a Metric Space Partitioned by One-way Barriers”, UC Merced Research Week Student Research Poster Competition, Poster presenter, Merced CA, Mar. 5, 2013.

“Pinning Fronts in Advection-Reaction-Diffusion Systems: a Dynamical Systems Approach”, 65th Annual Meeting of the APS Division of Fluid Dynamics, Oral presenter, San Diego CA, Nov. 18-20, 2012

“Hand-writing Recognition Algorithm Using Legendre Polynomial”, 10th Anniversary of UC Merced Founders Day, Student Representative selected by the Dean of Natural Sciences, Merced CA, Oct. 25, 2012.

“A Theory for Reaction-Diffusion-Advection Fluid System in Terms of One-sided Barriers”, SACNAS National Conference, Poster presenter, Seattle WA, Oct. 11-13, 2012.

“Back-action evasion and squeezing of a mechanical resonator using Digital signal processing optimal control”, Caltech SURF Seminar Day symposium, Oral presenter, Pasadena CA, Aug. 17, 2011

PUBLICATIONS “Frozen reaction fronts in steady flows: a burning-invariant-manifold perspective,” J.R. Mahoney, J. Li, et al., Physical Review E,(recieved: Fri Mar 27 17:10:56 2015,TEMPID: es2015mar27_726)
 — Featured in Kaleidoscope

PAPERS IN
PREPARATION

J. Li and O. Umurhan, 2013, Dynamical behavior of MW-map with Newton's method.

J. Li, J. Mahoney and K. Mitchell, 2013, Burning Invariant Manifold Theory and the Bipartite Digraph Representation of Generalized Dynamical System Formed by One-way Barriers

HONORS AND
AWARDS

ACADEMIC:

Nomination of Sproull fellowship at the University of Rochester	2014
Canadian-American-Mexican Graduate Student Physics Conference Travel Grant	2013
Academic Professional Development Award	2013
UCI Regents Fellowship [Declined]	2013
USC Dornsife College Merit Award [Declined]	2013
NSF Graduate Research Fellowship	2013
Grossman Scholar Fund Award — <i>Math</i>	2013
UC Merced Library Research Award—Undergraduate Award → Featured by school news	2013
UC Merced Math Department Annual “Integration Bee Contest” <i>Winner</i>	2013
McNair Scholar	2012-present
Merritt Undergraduate Research Award	2012
Scholarship-Renewable Energy	2012-2013
National SMART Grant	2010
Scholarship-Frances M Benton	2010-2013
Bobcat Scholarship	2009-2013
Certificate of Participation in American Invitational Mathematics Examination	2008, 2009

LEADERSHIP:

City of Merced Goodwill Ambassador	2012
Strauss Foundation Scholarship	2012
Featured in University News	tinyurl.com/6rzmpza
Featured in newspaper “Merced Sun-Star” (<i>front page</i>)	June 25, 2012
Featured in newspaper “Modesto Bee”	June 25, 2012
Featured on Guangyuan TV	July 30, 2012
UC Merced Distinguished Leadership Award Finalist	2012
Distinguished Volunteer in Guangyuan Orphanage	2012

MISCELLANEOUS:

UC Merced Pedestrian and Bicycle Safety Campaign - <i>Winner</i>	2013
UC Merced 4th Annual ΣAE Talent Show - <i>Top 5</i>	2012
UC Merced OSL talent show - <i>First Place</i>	2011
UC Merced Detective Contest - <i>First Place</i>	2011
Mazda Cup magic competition - <i>Third Place</i>	2010
Person of the Year 2006 - TIME	2006

LEADERSHIP

- Society of Physics Students, UC Merced 2011-2013
→ *Co-founder*
- *President* Spring 2012
- *Vice President* Fall 2012
- Physics Bar Forum of Baidu.com 2005-2013
→ *Administrator*
- Magic4Hope.org (Non-profit organization helping orphans) 2012-present
→ *Founder, Chief Executive*
→ *Named the City of Merced Goodwill Ambassador by the Mayor*

VOLUNTEER EXPERIENCE	• Caltech SURFSAC: committee serving SURF Students	2011
	• Participation in Tournament of Rose Parade	2009
	• Volunteer Magic Performance in Merced Boys and Girls Club, Relay for life	2012
	• Volunteer in Deyang Orphanage: <i>Named the Distinguished Volunteer</i>	2012

SKILLS	Matlab	Maple
	C++	C#
	Parallel Computing	Visualization
	Unity	Game design
	Mathematical modeling	Numerical analysis of ODE PDE
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LANGUAGES	Fluent in oral and written Mandarin Chinese, American English, and Sichuan Dialect, Matlab. Familiar with C++, html.
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