

# Curriculum Vitae of Huajun Huang

## Personal Information

Address: Mathematics and Statistics  
207 Parker Hall  
Auburn University  
Auburn, AL 36849, USA

Phone: (334) 844-5974

Email: [huanghu@auburn.edu](mailto:huanghu@auburn.edu)

Homepage: <http://www.auburn.edu/~huanghu>

Education: Ph.D., [Yale University](#), advisor [Roger Howe](#), 2004.  
B.A., [University of Science and Technology of China](#), 1998.

Member: [Sigma Xi](#), [The Scientific Research Society](#) (2009-present).  
[American Mathematical Society](#) (1998-present).  
[Mathematical Association of America](#) (2005-2006).

## Research Articles

My research interests include the structures of Lie groups and algebraic groups, matrix theory, and algebraic combinatorics. Below is a list of my recent research works:

### Accepted or Published:

1. Randall R. Holmes, Huajun Huang and Tin-Yau Tam, *Asymptotic behavior of Iwasawa and Cholesky iterations*, accepted, *Linear Algebra and its Applications*.
2. Huajun Huang and Hongyu He, *Symmetric subgroup actions on isotropic Grassmannians*, accepted, *Journal of Algebra*.
3. Huajun Huang and Tin-Yau Tam, *Aluthge iteration in semisimple Lie group*, *Linear Algebra and its Applications*, **432** (2010) 3250–3257.
4. Huajun Huang and Sangjib Kim, *On Kostant's partial order on hyperbolic elements*, *Linear and Multilinear Algebra*, **58** (2010) 783–788.

5. Huajun Huang and Tin-Yau Tam, *On the Gelfand-Naimark decomposition of a nonsingular matrix*, Linear and Multilinear Algebra, **58** (2010) 27–43.
6. Huajun Huang, *Asymptotic behavior of Gelfand-Naimark decomposition*, Operators and Matrices, **3** (2009) 439–449.
7. Huajun Huang, *Some extensions of Witt's theorem*, Linear and Multilinear Algebra, **57** (2009) 321–344.
8. Huajun Huang and Tin-Yau Tam, *Some asymptotic behaviors associated with matrix decomposition*, International J. of Information & Systems Sciences on Matrix Analysis and Applications, **4** (2008) 148–159.
9. Huajun Huang and Tin-Yau Tam, *An asymptotic result on the  $a$ -component in Iwasawa decomposition*, Journal of Lie Theory, **17** (2007) 469–479.
10. Huajun Huang and Tin-Yau Tam, *On the convergence of Aluthge sequence*, Operators and Matrices, **1** (2007) 121–141.
11. Huajun Huang and Tin-Yau Tam, *An asymptotic behavior of QR decomposition*, Linear Algebra and its Applications, **424** (2007) 96–107.
12. Tin-Yau Tam and Huajun Huang, *An extension of Yamamoto's Theorem on the eigenvalues and singular values of a matrix*, Journal of the Mathematical Society of Japan, **58** (2006) 1197–1202.
13. Huajun Huang and Tin-Yau Tam, *On the QR iterations of real matrices*, Linear Algebra and its Applications, **408** (2005) 161–176.

#### Ph.D. Dissertation:

- Huajun Huang, *Borel subgroup orbits of classical symmetric subgroups on multiplicity-free flag manifolds* (advisor: Roger Howe).

#### In Preparation:

1. Huajun Huang,  
*On complete multiplicative Jordan decomposition.*

## Teaching History

- Auburn:
 

2010	Fall	MATH-7310 110	Algebra I
		MATH-2637 100	Honors Calculus III
		MATH-2630 080/081	Calculus III
		MATH-8990 20	Research and Dissertation
	Summer	MATH-2650 211	Linear Differential Equations
		MATH-8990 004	Research and Dissertation
	Spring	MATH-8970 090	Introduction to Lie Groups
		STAT-3600 120	Probability and Statistics I
2009	Fall	MATH-2660 126	Linear Algebra
		MATH-1620 111	Calculus II
	Summer	MATH-1690 291	Business Calculus II
	Spring	MATH-6310 100	Abstract Algebra I
		MATH-5310 100	Abstract Algebra I
		MATH-2650 110	Linear Differential Equations
2008	Fall	MATH-2650 081	Linear Differential Equations
		MATH-1620 101	Calculus II
	Summer	MATH-1690 181	Business Calculus II
	Spring	MATH-7320 101	Graduate Algebra II
		MATH-2660 122	Linear Algebra
2007	Fall	MATH-5320 001	Abstract Algebra II
		MATH-2630 111	Calculus III
	Summer	MATH-1620 091	Calculus II
	Spring	MATH-5320 001	Abstract Algebra II
		MATH-1620 092	Calculus II
2006	Fall	MATH-5310 001	Abstract Algebra I
		MATH-1610 142	Calculus I
	Summer	MATH-2660 231	Linear Algebra
	Spring	MATH-2660 116	Linear Algebra
		MATH-1620 121	Calculus II
2005	Fall	MATH-2660 111	Linear Algebra
		MATH-1610 126	Calculus I
	Spring	MATH-2660 111	Linear Algebra
		MATH-2660 081	Linear Algebra

2004	Fall	MATH-2660 116	Linear Algebra
		MATH-2660 096	Linear Algebra

- Yale:

2003	Fall	MATH 120	Multivariable Calculus
	Spring	MATH 120	(Tutor Sessions)
		MATH 115	(Tutor Sessions)
		MATH 112	(Tutor Sessions)

## Conferences and Presentations

- March 23, 2011, Yale University,  
[Attend Walter Feit Memorial Lecture and Algebra and Lie Groups Seminar](#). Talks given by Allen Knutson.
- March 26-28, 2010, Southern Regional Algebra Conference, Auburn University at Montgomery,  
[On Kostant's partial order on hyperbolic elements](#).
- November 11, 2009, Auburn University,  
[Invariants in some group actions](#).
- October 8-11, 2009, North Carolina State University,  
[Southeastern Lie Theory Workshop on Combinatorial Lie Theory and Applications](#).
- May 18, 2009, Zhejiang Normal University,  
[Witt's theorem: history, extensions, and applications](#).
- May 15, 2009, Shanghai Jiao Tong University,  
[Isometry group actions on subspaces](#).
- May 4, 2009, Louisiana State University,  
[On simultaneous isometry of subspaces](#).
- April 17, 2009, Auburn University at Montgomery,  
[Some extensions of Witt's theorem](#).
- June 26, 2008, Auburn University, ([GK-12 Math Fellow Meeting](#))  
[The Pythagorean Theorem: proof and generalizations](#).

- March 24, 2007, Auburn University, ([Robert C. Thompson Matrix Meeting](#))  
On Gelfand-Naimark decomposition of a nonsingular matrix.
- December 15-17, 2006, Nova Southeastern University  
([2nd International Workshop on Matrix Analysis and Applications](#))  
On the convergence of Aluthge sequence.
- October 29, 2006, Auburn University, ([Southeastern Algebra Conference](#))  
On the convergence of Aluthge sequence.
- June 8-17, 2006, Nankai University, Tianjin, China  
[Summer School: Representation Theory and Harmonic Analysis.](#)
- June 4-6, 2006, China University of Mining Technology, Xuzhou, China  
Borel orbits and invariants of symmetric subgroups on flag manifolds.
- October 27, 2005, University of South Alabama  
Borel orbits of symmetric subgroups on flag manifolds.
- April 14, 2005, Auburn University  
Linear algebra, Lie groups, Lie algebras, and representation theory.
- March 24-27, 2005, University of Arizona. [Geometric Representation Theory Workshop.](#)
- January 5-8, 2005, Atlanta, GA. [AMS-MAA joint meeting.](#)
- November 13, 2004, San Jose State University, ([Southern California Matrix Meeting](#))  
Borel orbits and invariants of classical symmetric subgroups on multiplicity-free complete flag manifolds.
- September 24, 2004, Auburn University  
Representations and invariants behind some decompositions (II).
- September 17, 2004, Auburn University  
Representations and invariants behind some decompositions (I).
- Spring 2004, Yale University. [Some seminar talks.](#)

- March 8, 2004, Auburn University  
Borel orbits and invariants of classical symmetric subgroups on multiplicity-free flag manifolds.
- February 2004, Yale University  
Borel orbits and invariants of classical symmetric subgroups on Grassmannians.
- May 2001, Yale University  
Combined hyperbolic plane decompositions of isometry groups.

## Other Academic Services and Outreach Activities

- Reviewer for *MathSciNet (Mathematical Reviews on the Web)*.
- Reviewer for *Zentralblatt MATH*.
- Referee for peer-reviewed journals:
  - *Linear and Multilinear Algebra*
  - *Linear Algebra and Its Applications*
  - *American Mathematical Monthly*
  - *Journal of Mathematical Sciences: Advances and Applications*
- Courses designed:
  - Design the syllabus of “*Introduction to Lie Groups*” in 2009.
  - Design the syllabi of “*Lie Algebra I & II*” with Randall R. Holmes and Tin-Yau Tam, in 2008.
- Advisor of the graduate student:
  - **Daniel Brice**, Mathematics, Ph.D. program, 2009 - present.
- Member of the Ph.D. Committees:
  - Anna Wan Brice (advisor Marilyn Strutchen), Mathematics Education, Department of Curriculum and Teaching, 2010-present.
  - Mary Clair Thompson (advisor Tin-Yau Tam): Mathematics, 2010-present.

- Roy Xuhua Liu (advisor Tin-Yau Tam): Mathematics, 2008-present.
- Jason Ervin (advisor Randall R. Homles): Mathematics, 2006-2007.
- Outside reader of the Ph.D. dissertation:
  - Heping Liu (advisor Saeed Maghsoodloo): Industrial and Systems Engineering, 2009.
- Member of M.S.M. (Master of Science in Mathematics) and M.A.M. (Master of Applied Mathematics) Committees:
  - Dawit Gezahegn Tadesse (advisor Tin-Yau Tam): M.S.M., 2010-present.
  - Mary Clair Thompson (advisor Tin-Yau Tam): M.S.M., 2007-present.
  - Ruchika Sabharwal (advisor Narendra Govil): M.A.M., 2007-2009.
  - Neha Agarwal (advisor Narendra Govil): M.A.M., 2006-2007.
- Chair of the graduate algebra preliminary examination committee, 2008.
- Organizer of the mathematics comprehensive examination for Anna Wan Brice, 2010.
- Advisors in MATH for 13 undergraduate students since Fall 2010.
- Assistant chair of the organizing committee of the joint meeting of 85th MAA (Mathematical Association of America) Meeting (Southeastern Section) and 30th SIAM (Society for Industrial and Applied Mathematics) Annual Meeting (Southeastern Atlantic Section), April 2005 - April 2006.
- Judge the South's BEST (Boosting Engineering Science and Technology) Robotics Regional Championship, December 2009.
- Help organize Science Olympiad events, 2005-2011.
- Participate in GK-12 Fellow Presentation, June 2008.