

# Christopher A. Kurth

## Curriculum Vitae (March 2009)

- **Contact Information:**

**Address:**

Department of Mathematics  
Iowa State University  
465 Carver Hall  
Ames, IA 50011

**Phone:** (402)-670-0864

**Email:** kurthc@iastate.edu

**Website:** <http://www.public.iastate.edu/~kurthc/index.html>

- **Education:**

**2004-Present:** Iowa State University, Ames, IA  
Ph.D. in Mathematics, expected Spring 2009  
Advisor: Ling Long

**2000-2004:** University of Kansas, Lawrence, KS  
B.S. in Mathematics with minor in Physics and Classical Languages

- **Awards:**

– J. J. L. Hinrichsen Pure Mathematics Award (for graduate research) (Spring 2008)

- **Research Interests:**

Number Theory and its applications. Modular forms. Finite index subgroups of  $\mathrm{PSL}_2(\mathbb{Z})$ , particularly the noncongruence groups. Computational methods (Farey symbols, modular symbols).

- **Papers:**

- *On modular forms for some noncongruence subgroups of  $\mathrm{SL}_2(\mathbb{Z})$  (II)* (with Ling Long), submitted to Journal of London Math Soc.
- *On modular forms for some noncongruence subgroups of  $\mathrm{SL}_2(\mathbb{Z})$*  (with Ling Long), Journal of Number Theory, Vol 128 No. 7, (2008) pp. 1989-2009
- *Computations with finite index subgroups of  $\mathrm{PSL}_2(\mathbb{Z})$  using Farey Symbols* (with Ling Long), Advances in algebra and combinatorics, Proceedings of the second International Congress in Algebra and Combinatorics, World Scientific, (2008) 225-242

- **Talks Given:**

- *Modular Forms for some Noncongruence Subgroups of  $\mathrm{SL}_2(\mathbb{Z})$* , 2009 Joint Mathematics Meeting, AMS Session on Number Theory, Washington DC, January 2009

- *Modular Forms for some Noncongruence Subgroups of  $SL_2(\mathbb{Z})$* , Algebra Seminar, Iowa State, December 2008
- *Schoof’s Algorithm*, Elliptic Curves Seminar, Iowa State, November 2008
- *Elliptic Functions (I and II)*, Elliptic Curves Seminar, Iowa State, October 2008
- *Transcendentality and the  $j$ -function*, Hypergeometric Series Seminar, Iowa State, April 2008
- *Farey Symbols and Modular Symbols*, Algebra Seminar, Iowa State, March 2008
- *Farey Symbols and Finite Index Subgroups of  $PSL_2(\mathbb{Z})$* , 2008 Joint Mathematics Meeting, Special Section on Modular Forms (invited speaker), San Diego, January 2008
- *Hypergeometric Series and the Hyperbolic Disc*, Hypergeometric Series Seminar, Iowa State, October 2007
- *Farey Symbols and Subgroups of  $PSL_2(\mathbb{Z})$* , MAA Iowa Meeting, Drake University, April 2007
- *Constructing Noncongruence Subgroups*, Algebra Seminar, Iowa State, November 2006

• **Meetings Attended:**

- 2009 Joint Mathematics Meeting, Washington DC (January 5-9, 2009)
- Arizona Winter School 2008: Special Functions and Transcendence, University of Arizona (March 15-19, 2008)
- 2008 Joint Mathematics Meeting, San Diego (January 7-8, 2008)
- 2007 IMA PI Summer Program for Graduate Students: Applicable Algebraic Geometry, Texas A&M University (July 23-August 10, 2007)
- Arizona Winter School 2006: Computational and Algorithmic Aspects of Algebra and Arithmetic, University of Arizona (March 11-15, 2006)

• **Teaching:**

- High School Mathematics, Calculus I, Calculus II, Calculus III (Small Sections)
- Trigonometry, Calculus III (Recitations)
- REU Mentor (Summer 2005, 2006)

• **Other Research Experience:**

- Research Assistant (Summer 2007, 2008) (Supported by Ling Long’s NSA grant in 2008)

• **Scientific Software:**

- *KFarey*, a SAGE package for working with Farey Symbols  
<http://www.public.iastate.edu/kurthc/research/index.html>