

CURRICULUM VITAE

Soojeong Kim

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Education

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| 2003 – present | University of Iowa , Iowa City, IA
Ph.D., Applied Mathematical and Computational Sciences,
Expected May 2009
Advisors: Isabel K. Darcy
Thesis Topic: Tangle analysis of DNA-protein complex |
| 2000 – 2002 | Pusan national university , Pusan, South Korea
M.A., Mathematics |
| 1996 – 2000 | Pusan national university , Pusan, South Korea
B.S., Mathematics |

Research Interests

My current research interests are in applications of topology to biology especially understanding DNA topology. I'm also interested in low dimensional topology, knot theory, tangle analysis, algebraic topology and elementary algebra.

Publications

- Kim, S., *Prime radicals which are nilpotent*, MS Thesis, Pusan National University, 2001.
- Kim, S., Darcy, I.K., *Topological Analysis of DNA-protein Complexes*, Mathematics of DNA Structure, Function, and Interactions edited by Craig John Benham, Stephen Harvey, Wilma K. Olson, De Witt L. Sumners, and David Swigon, Springer Science + Business Media, LLC, New York, 2009.
- Kim, S., Darcy, I.K., *4-string tangle analysis of DNA-protein complexes based on difference topology*, Preprint.

Selected Talks and Posters

Presentations

- *A segment polarity network in Drosophila melanogaster with Reverse-engineering of Polynomial Dynamical Systems*, (group presentation) MSRI Summer Graduate Workshop on Mathematical aspects of computational biology, University of Berkley (2006)
- *An n-string tangle and its application*, Topology seminar, University of Iowa (2006)
- *Reverse-engineering of polynomial dynamical systems*, Math Biology seminar, University of Iowa (2006)
- *Double branched cover of an n-string tangle*, Undergraduate and graduate student topology seminar (2006)
- *Review for Mu transpososome through the topological lens*, Video conference meeting with University of Texas at Dallas (2007)
- *Topological analysis of DNA-protein complexes*, Mathematics of Molecular and Cellular Biology Seminar, IMA (December, 2007)
- *Topological analysis of Mu transpososome*, Math Biology seminar, University of Iowa (2007)
- *4-string tangle analysis on DNA-protein complexes*, Topology seminar, University of Iowa (2008)
- *DNA topology and tangle analysis*, Joint meeting with Louisiana State University (2008)

Posters

- *A tangle analysis of a DNA-protein complex which binds four DNA segments*, Workshop: Mathematics of DNA Structure, Function, and interactions, IMA (September, 2007)
- *Topological analysis of DNA-binding protein complexes*, Workshop: Protein Folding, IMA (January, 2008)
- *4-string tangle analysis of DNA-protein complexes based on difference topology*, Jakobson Conference (March, 2008)

Awards and Honors

- Catharine Wegner Outstanding Mathematics Teaching Assistant Award (2007)
- Teaching Assistantship (Fall 2003 – Spring 2007, Spring 2008-present)
- Research Assistantship (Spring 2009, expected)
- Fellowship
 - Outstanding Women Graduate Students Fellowship, Minister of Gender equity, South Korea (2002)
 - Summer Graduate Fellowship, AMCS (2006-2007)
 - Graduate College Summer Fellowship, University of Iowa (2008)
- Graduate Assistant Tuition Award (2003-2008)

Teaching Experience

Graduate Teaching Assistant, University of Iowa, August 2003 – present (except Fall 2007, off campus to participate in IMA Thematic Year)

- Helper:
 - Calculus and Matrix Algebra for Business (Spring 2006)
- Discussion leader :
 - Logic of Arithmetic (Spring 2007)
 - Mathematics for the Biological Sciences (Fall 2005, Fall 2008)
 - Calculus and Matrix Algebra for Business (Fall 2003, Spring 2004)
 - Calculus I (Fall 2004, Spring 2005)
 - Engineer Math I: Single Variable Calculus (Fall 2006)
- Grader:
 - Engineering Math III: Matrix Algebra (Fall 2006)
- Tutor :
 - Mathematics Tutorial Laboratory (Fall 2003 – Spring 2007, Spring 2008-present)

Other Activities

- Attended to *Com2MaC Open School, Lecture series on Graph Theory and Its Applications by Ervin Gyori*, Postech, South Korea (7/ 2 – 7/ 27, 2001)
- Attended to *Special Session on Knot Theory and Its Applications*, AMS, Western Kentucky University (March, 2005)
- Attended to *MSRI Summer Graduate Workshop on Mathematical aspects of computational biology*, MSRI (July, 2006)
- Attended to *Sumners Fest, conference on Low-Dimensional Topology and Applications to Molecular Biology and Biomedical Mathematics*, Florida State University (May, 2007)
- Long term visitor, *IMA Thematic Year on Molecular and Cellular Biology*, IMA (8/30/07 - 1/20/08)
 - Attended to *Tutorial: Mathematics of Nucleic Acids*, IMA (9/15/07)
 - Attended to *Workshop: Mathematics of DNA Structure, Function, and interactions*, IMA (9/16-21/07)
 - Attended to *Workshop: RNA in Biology, Bioengineering and Nanotechnology*, IMA (10/29-11/2/07)
 - Attended to *Tutorial: Mathematics of Proteins*, IMA (10/29-11/2/07)
 - Attended to *Workshop: Protein Folding*, IMA (1/14-18/08)
- Attended to *The 10th Annual James F. Jakobsen Conference*, University of Iowa (March, 2008)

Technologies

- Platforms: Windows 95/98/NT/2000/XP, LINUX
- Markup Language: LaTeX
- Other: MATLAB, Microsoft Office Power Point, Excel, Word

Memberships

AMS (American Mathematical Society), SIAM (Society for Industry and Applied Mathematics), AMCS (Applied Mathematical and Computational Sciences, University of Iowa), KSEA (Korean-American Scientists and Engineers Association)