

# Curriculum Vitae MAGGY TOMOVA

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## EDUCATIONAL AND PROFESSIONAL HISTORY

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### Higher Education

- 1999-2005      Ph.D., Mathematics, University of California, Santa Barbara
- 1995-1999      B.S., Mathematics and Biochemistry, California Lutheran University
- 2005              Certificate in College and University Teaching, UC, Santa Barbara

### Professional and Academic Positions

- 2008-            Assistant Professor, University of Iowa, Mathematics Department
- 2007-2008      Evans Instructor, Rice University, Mathematics Department
- 2005-2007      Visiting Assistant Professor, University of Iowa, Mathematics Department

### External Funding

- 2011-2016      CAREER: New approaches to classical knot invariants (\$405,893)
- 2011-2013      Applications of thin position to uniqueness problems (Travel, CoPI)
- 2009            Geometric topology in three and four dimensions (conference grant: \$25,000, CoPI)
- 2007-2011      Special surfaces in knot complements (\$90,238.00)

## Scholarship

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### Refereed Publications

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1. M. Morris-Rivera\*, M. Tomova, C. Wyels, and A. Yeager\*8. Radio numbers of  $C_n \square C_n$ . *Ars Combinatoria*.
2. S. Taylor and M. Tomova. Heegaard surfaces for certain graphs in compression bodies. *Revista Matemática Complutense*, June 23, 2011.
3. J. Johnson and M. Tomova. Flipping bridge surfaces and bounds on the stable bridge number. *Algebr. Geom. Topol.*, 11: 1987–2005, 2011.
4. R. Blair and M. Tomova. Companions of the unknot and width additivity. *J. Knot Theory Ramifications*, 20(4), 497–511, 2011.
5. M. Tomova and C. Wyels. Pebbling graph products. *Ars Combinatoria*, 98:493– 499, 2011.
6. P. Martinez\*, J. Ortiz\*, M. Tomova, and C. Wyels. Radio numbers for generalized prism graphs. *Discussiones Mathematicae Graph Theory*, 31(1):45–62, 2011.
7. M. Tomova. Cut-disks for level spheres in link and tangle complements. *Topology Appl.*, 156(4):783–794, 2009.
8. Z. Szaniszlo, M. Tomova, and C. Wyels. The N-queens problem on a symmetric Toeplitz matrix. *Discrete Math.*, 309(4):969–974, 2009.
9. M. Tomova. Thin position for knots in a 3-manifold. *J. Lond. Math. Soc. (2)*, 80(1):85–98, 2009.
10. M. Tomova. Distance of Heegaard splittings of knot complements. *Pacific J. Math.*, 236(1):119–138, 2008.
11. M. Scharlemann and M. Tomova. Conway products and links with multiple bridge surfaces. *Michigan Math. J.*, 56(1):113–144, 2008.
12. M. Scharlemann and M. Tomova. Uniqueness of bridge surfaces for 2-bridge knots. *Math. Proc. Cambridge Philos. Soc.*, 144(3):639–650, 2008.
13. M. Tomova. Multiple bridge surfaces restrict knot distance. *Algebr. Geom. Topol.*, 7:957–1006, 2007.
14. M. Scharlemann and M. Tomova. Alternate Heegaard genus bounds distance. *Geom. Topol.*, 10:593–617 (electronic), 2006.
15. M. Tomova. Compressing thin spheres in the complement of a link. *Topology Appl.*, 153(15):2987–2999, 2006.

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**Submitted**

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16. R. Blair and M. Tomova. Width is not additive. arXiv:1005.1359.
17. S. Taylor and M. Tomova. Essential surfaces in (3-manifold, graph) pairs and levelling edges of heegaard spines. arXiv:0910.3019.

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**In progress**

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18. K. Benson, M. Porter\*, and M. Tomova. The radio numbers of all graphs of order  $n$  and diameter  $n - 2$ .
19. S. Taylor and M. Tomova. Leveling edges of Heegaard spines.
20. R. Blair, M. Tomova, and M. Yoshizawa. High distance bridge surfaces.

\* Indicates an author who was an undergraduate student at the time the research was done.

## Selected Invited Talks

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- *Flipping bridge surfaces and bounds on the stable bridge number*, AMS Sectional Meeting on Geometry and Applications of 3-Manifolds, Worcester, MA, April 9-10, 2011
- *Flipping Bridge Surfaces*, Colloquium, University of Arkansas, March 18, 2010
- *Knots on a diet*, Graduate Student Seminar, University of Arkansas, March 16, 2010
- *Essential surfaces in (3-manifold, graph)-pairs and edge levelling*, Joint Topology Seminar, Oklahoma State University and the University of Oklahoma, December 2, 2009
- *Thin position and width additivity*, Topology Seminar, Brigham Young University, April 7, 2009
- *Thin Position for knots*, Colloquium, Washington University, December 15, 2008
- *Heegaard splittings and bridge surfaces*, Topology Seminar, Washington University, December 15, 2008
- *Vertical cut-disks for level spheres*, The 25th Annual Workshop in Geometric Topology, Park City, June 27, 2008
- *Why cut-disks?*, Teichmüller Theory and Low Dimensional Topology, Snowbird, June 19, 2008
- *The curve complex and distance*, Teichmüller Theory and Low Dimensional Topology, Snowbird, June 17, 2008
- *Properties of Generalized Heegaard Splittings*, Teichmüller Theory and Low Dimensional Topology, Snowbird, June 16, 2008
- *Knots and their invariants*, a series of five lectures, Women and Mathematics, Institute for Advanced Studies, Princeton, May 19-23, 2008
- *C-incompressible planar surfaces in knot complements*, AMS sectional meeting, Claremont, May 3, 2008
- *Bridge surfaces, distance and thin position*, Colloquium, University of Iowa, February 11, 2008
- *C-incompressible planar surfaces in knot complements*, 3rd Annual Louisiana Texas Topology Retreat, February 9, 2008
- *Studying knots via c-compressions*, Joint Mathematics Meetings, January 9, 2008
- *Heegaard splittings, bridge surfaces and thin position*, Mathematics Colloquium, Oklahoma State University, November 30, 2007
- *Bridge surfaces and the information they carry*, Joint Topology Seminar, Oklahoma State University and University of Oklahoma, November 28, 2007
- *Bridge surfaces and the information they carry*, UT Austin, October 29, 2007
- *Comparing bridge surfaces*, Joint Mathematics Meetings, January 8, 2007
- *Alternate Heegaard genus bounds distance*, Columbia University, February 3, 2006
- *Comparing splitting surfaces*, Mathematics Colloquium, Wake Forest University, February 5, 2006
- *Constructing a complicated knot*, Mathematics Colloquium, Bradley University, December 1, 2005
- *Alternate Heegaard genus bounds distance*, Topology Seminar, UC Davis, June 8, 2005
- *Alternate Heegaard genus bounds distance*, Arkansas-Oklahoma Workshop in Topology, May 19, 2005

## TEACHING

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### Summary of Student Evaluations

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All scores are on a six-point scale.

4: Instructor seems interested in teaching this course.

6: The instructor communicates well.

10: This instructor presents the material clearly.

11: The instructor is effective in teaching the subject matter of this course.

13: This instructor is an excellent teacher.

	4 interested	6 communication	10 clear	11 effective	13 excellent
<b>Undergraduate classes</b>					
Intro to Abstract Algebra (S11)	5.94	5.75	5.38	5.75	5.68
Calculus I H (F10)	5.97	5.83	5.77	5.83	5.83
Calculus I B (F10)	5.96	5.81	5.84	5.93	5.88
Math for Bio (S10) (large lecture)	5.91	5.75	5.70	5.82	5.77
Calculus I A (F08)	5.78	5.69	5.57	5.74	5.63
Calculus I B (F08)	5.84	5.67	5.72	5.81	5.72
Calculus I (F06)	5.86	5.54	5.66	5.66	5.71
Finite Math (S06)	5.88	5.53	5.21	5.62	5.38
Spaces and Functions (S06)	5.92	5.63	5.30	5.63	5.38
Basic Analysis (S06)	5.88	5.88	5.67	5.88	5.88
Calculus I (F05)	5.97	5.61	5.50	5.77	5.83
<b>Graduate classes</b>					
Algebraic Topology (F10)	6.00	5.88	5.79	6.00	6.00
Algebraic Topology (F09)	5.89	4.38	4.67	4.67	4.75
Differential Topology (S09)	5.75	5.75	5.20	5.33	5.20
Topics in Topology (F06)	5.93	5.93	6.00	5.93	5.83

### **Ph. D. Students Supervised**

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Alex Zupan – Ph.D. expected 2012  
Trent Schirmer – Ph. D. expected 2013  
Katie Benson – Ph. D. expected 2013

### **Undergraduate Students Supervised**

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Mathew Porter – undergraduate research assistant Spring 2010 – Spring 2011. Currently graduate student at UCSB.

Adriana Mendoza – REU participant ‘10  
Benjamin Sporrer – REU participant ‘10  
Mathew Porter – REU participant ‘10  
Norma Manzano – REU participant ‘10  
Lewis Contreras – REU participant ‘10  
Diana Canales – REU participant ‘09  
La Tisha Hospedales – REU participant ‘09  
Kristin Tejeda – REU participant ‘09  
Alba Romero – REU participant ‘09  
Vanessa Espinoza – REU participant ‘09  
Kathleen Lewis – REU participant ‘08  
Josie Euler – REU participant ‘08  
Edwardo Calles – REU participant ‘08  
Henry Gomez – REU participant ‘08  
Yannick Pitcan – REU participant ‘08

### **Practica in College Teaching Supervised**

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Alina Florescu – Expected ‘13  
Kristopher Williams –Expected ‘12

### **High School Students**

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2011            Math Summer Institute for high school students, The University of Iowa  
2011-2012     Tutor two high school students to catch up to grade-level math

## SERVICE

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### Profession

#### *Journal Review*

- 2006- Referee: *Knot Theory and its Ramifications*, *Algebraic and Geometric Topology*, *Pacific Journal of Mathematics*, *Communications in Analysis and Geometry*, *Geometria Dedicata*, and *Proceedings of the AMS*.  
Reviewer: Math Reviews

#### *Federal Government*

- 2011 One grant for the National Science Foundation reviewed via mail  
2009 National Science Foundation panelist. Reviewed 10 grant proposals.

#### *Conference Organizer*

- 2011 Special Session on *Thin Position*, AMS Sectional Meeting (with Johnson)  
2009 *Geometric Topology in Three and Four Dimensions* (with Eudave-Munos, Johnsons, Schultens and Thompson)  
2009 Special Session on *Low Dimensional Topology and Teichmüller Theory*, Joint Mathematics Meeting (with Kent)  
2007 Workshop on *Triangulations, Heegaard Splittings and Hyperbolic Geometry* at the American Institute of Mathematics (with Schultens)

### The University of Iowa

#### *Present*

- 2011- Faculty mentor for USTARS (Underrepresented Students in Topology and Algebra Research Symposium)  
2011- *Mentoring Through Critical Transition Points* grant proposal Steering committee  
2010- Member, Graduate Committee  
2009- Member, Minority Student Recruiting and Development Committee  
2010- Organizer, Topology reading seminar

#### *Past*

- 2010 Member, AMS Sectional Meeting Organization Committee  
2009-2010 Co-organizer, Professional development seminar  
2008-2009 Member, Search Committee  
2008-2009 Chair, Colloquium Committee  
2009 Panelist, 4<sup>th</sup> Annual Sonia Kovalevsky Day  
2009- 2011 Panelist, Prospective Graduate Students Orientation  
2009, 2010 Presenter, Undergraduate Research Seminar  
2009, 2010 Presenter, First Year Graduate Student Seminar

**Community**

2009-            Animal shelter volunteer