

# David Shea Vela-Vick

---

Department of Mathematics  
University of Pennsylvania  
209 South 33rd Street  
Philadelphia, PA 19104-6395  
Born: August 26, 1982  
Citizenship: USA

Office: (215) 898-9234  
Fax: (215) 573-4063  
Home: (713) 254-2621  
dvick@math.upenn.edu

<http://www.math.upenn.edu/~dvick>

---

## Education

**University of Pennsylvania** Philadelphia, PA  
Ph.D. in Mathematics, Expected May 2009  
Advisor: John Etnyre  
Research Interests: Low-Dimensional Topology, Contact Geometry,  
Knot Theory, Differential Geometry

**Rice University** Houston, TX  
B.A. in Mathematics *magna cum laude*, May 2004

---

## Awards and Scholarships

Penn Prize for Excellence in Teaching Fall 2005  
Honorable Mention  
University of Pennsylvania  
Departmental Good Teaching Award Fall 2005, Spring 2006  
University of Pennsylvania  
Benjamin Franklin Fellowship 2004-2008  
University of Pennsylvania  
Frank Jones Scholarship Summer 2003  
Rice University

---

## Publications

*Triple Linking Numbers, Hopf Invariants and Integral Formulas for Three-Component Links*

Joint with D. DeTurck, H. Gluck, P. Melvin, R. Komendarczyk, and C. Shonkwiler: In Preparation

*On the Transverses Invariant for Bindings of Open Books*

Preprint, 2008. [arXiv:math/0806.1729](https://arxiv.org/abs/math/0806.1729)

*Higher-Dimensional Linking Integrals*

Joint with Clayton Shonkwiler: Submitted, 2008. [arXiv:math/0801.4022](https://arxiv.org/abs/math/0801.4022)

*The Four Vertex Theorem and its Converse*

Joint with D. DeTurck, H. Gluck, and D. Pomerleano: Notices Amer. Math. Soc. **54**, 2007, No. 2, 192-207.

---

---

## Talks and Presentations

---

<i>On the Transverse Invariant for Bindings of Open Books</i> PACT Seminar: Bryn Mawr College	Spring 2008
<i>Arnol'd's Dream: Higher Order Helicity Invariants</i> Geometry-Topology Reading Seminar: University of Pennsylvania	Spring 2008
<i>Contact Geometry and Heegaard Floer Homology</i> (4 talks) PACT Seminar: Bryn Mawr College	Spring 2008
<i>Legendrian and Transverse Invariants from Heegaard Floer Homology</i> Graduate Geometry-Topology Seminar: University of Pennsylvania	Spring 2008
<i>Higher-Dimensional Linking Integrals</i> Topology Seminar: University of Georgia	Spring 2008
<i>Heegaard Floer Homology and Sutured Manifolds</i> Graduate Geometry-Topology Seminar: University of Pennsylvania	Fall 2007
<i>Hamiltonian Dynamics and Periodic Reeb Orbits</i> Graduate Student Seminar: University of Pennsylvania	Fall 2007
<i>Contact Invariants from Heegaard-Floer Homology</i> Graduate Geometry-Topology Seminar: University of Pennsylvania	Spring 2007
<i>The Four-Vertex Theorem and its Converse</i> Geometry-Topology Seminar: Georgia Tech	Fall 2006
<i>The Four-Vertex Theorem and its Converse</i> Geometry Seminar: University of Georgia	Fall 2006
<i>Khovanov Homology and the Rasmussen <math>s</math>-Invariant</i> Geometry-Topology Reading Seminar: Georgia Tech	Fall 2006
<i>An Introduction to Khovanov Homology</i> Geometry-Topology Reading Seminar: Georgia Tech	Fall 2006
<i>Taut to Tight: Foliations to Contact Structures</i> Geometry-Topology Seminar: University of Pennsylvania	Summer 2006
<i>On Khovanov Homology and the Slice Genus</i> Graduate Geometry-Topology Seminar: University of Pennsylvania	Spring 2006
<i>A Few Facts About 3-Manifolds</i> Graduate Student Seminar: University of Pennsylvania	Fall 2005
<i>The Lickorish-Wallace Theorem</i> (2 talks) Graduate Geometry-Topology Seminar: University of Pennsylvania	Fall 2005
<i>Knots, <math>S</math>-Equivalence, and the Double-Delta Move</i> (2 talks) Graduate Geometry-Topology Seminar: University of Pennsylvania	Spring 2005
<i>The Pentagonal Number Theorem</i> Undergraduate Colloquium: Rice University	Spring 2003
<i>A Recursion on Quadruples</i> Undergraduate Colloquium: Rice University	Fall 2002

---

---

## Teaching Experience

---

<b>Instructor: Calculus III, Introduction to Calculus</b> University of Pennsylvania	2005-2007
<b>Teaching Assistant: Algebraic Topology, Calculus III, Calculus II</b> University of Pennsylvania	2005-2007
<b>Teaching Assistant: PCMI Summer Session</b> TA for John Etnyre's course on contact geometry in low-dimensions: Park City Mathematics Institute	Summer 2006
<b>Grader: Ideas in Mathematics</b> University of Pennsylvania	Spring 2005
<b>Tutor: Math Help Center</b> University of Pennsylvania	Spring 2005-
<b>Lecturer: Math 468</b> Lectured weekly from Gareth A. Jones and David Singerman's <i>Complex Functions, an algebraic and geometric viewpoint</i> : Rice University	Spring 2004
<b>Frank Jones Scholarship Program</b> Lectured from Marcel Berger's <i>Geometry I</i> and <i>Geometry II</i> : Rice University	Summer 2003

---

## Conferences and Workshops Attended

---

Georgia Topology Conference	Spring 2007
Geometry and the Imagination	Spring 2007
Geometry Festival	Spring 2007
Texas Geometry Topology Conference	Fall 2006
Park City Mathematics Institute Summer Session	Summer 2006
Geometry Festival	Spring 2006
Geometry Festival	Spring 2005
Joint Meetings of the AMS and the MAA	Summer 2004
Texas Geometry Topology Conference	Spring 2004

---

## Professional Service

---

<b>Coordinator, Lecturer:</b> Low-Dimensional Topology Seminar: University of Pennsylvania	Spring 2007
<b>Coordinator:</b> Graduate Student General Seminar: University of Pennsylvania	2006-2007
<b>Representative:</b> Graduate Student Associations Council: University of Pennsylvania	2005-2006
<b>Volunteer:</b> Rice Alumni Volunteers for Admission: Rice University	2004-

---

---

**Professional Memberships**

---

American Mathematical Society	2003-
Association for Women in Mathematics	2005-
Society for Industrial and Applied Mathematics	2005-
Phi Beta Kappa	2004-

---