

Sean Cox

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<http://wwwmath.uni-muenster.de/logik/Personen/Cox>

Employment and Education

- **Akademischer Rat auf Zeit** (postdoctoral position), Institute for Mathematical Logic and Basic Research, University of Münster, Germany (2009–present).
- **Ph.D. program in Mathematics**, University of California, Irvine (2002–2009).
 - *Dissertation*: “Covering theorems for the core model, with applications.”
 - Received the department’s *Kovalevsky Outstanding PhD Thesis Award*.
 - *Advisor*: Martin Zeman
- **Economist**, Regional Economic Research, San Diego, CA (2001–2002) and Triangle Economic Research, Durham, NC (1999–2001).
- **B.A. in Economics**, North Carolina State University (1999).

Research overview

- *Research specialty*: mathematical logic and set theory.
- 5 publications (3 already in print, 2 others accepted for publication), a recent submission, and several papers in preparation. See “**Publications and Preprints**” section below for the full list.
- Presented research in a variety of settings, including expository talks for general audiences. See “**Research Presentations**” section below for the full list.

Teaching overview

- *Primary Instructor* for 5 quarters. Main duties: course planning, teaching, and supervising teaching assistants. See “**Courses Taught**” section below for the full list.
- *Teaching Assistant* for 18 quarters. Main duties: leading the discussion/recitation sections and grading.

Professional service

- Regularly serve as referee for various mathematics journals.
- Reviewer for *MathSciNet* (the review database of the American Mathematical Society).
- Program Committee member for 2011 Young Set Theory Workshop.
- Wrote the official report of the Workshop on Fine Structure and Inner Model Theory, Oberwolfach (2009).
- Reviewer of conference notes from Appalachian Set Theory meeting (2010).
- Panel member for 2009 TA Professional Development Program at University of California, Irvine.

Awards, Grants, and Fellowships

- Obtained grant from the European Science Foundation (ESF) to visit and collaborate with Dr. Matteo Viale in Torino, Italy (November 2011).
- Obtained grant from ESF to attend Third European Set Theory Conference (July 2011).
- *Kovalevsky Outstanding PhD Thesis Award 2008-2009*, UC-Irvine Mathematics Department.
- Obtained grant to attend the 2009 Young Set Theorist Workshop in Barcelona, Spain.
- Obtained NSF/ASL grant to attend the 2009 annual meeting of Association for Symbolic Logic.

- *Von Neumann Award for Outstanding Performance as a Graduate Student 2006-2007*, UC-Irvine Mathematics Department.
- Partially supported by NSF grant through Martin Zeman (summers of 2006, 2007, and 2008).
- UC-Irvine mathematics department fellowships (Winter 2007, Summer 2007, Spring 2008).

Publications and Preprints

(preprints available at <http://wwwmath.uni-muenster.de/logik/Personen/Cox/Research>)

Published and accepted articles:

- *The Diagonal Reflection Principle*, Proceedings of the American Mathematical Society (to appear).
- *PFA and ideals on ω_2 whose associated forcings are proper*, Notre Dame Journal of Formal Logic (to appear).
- *Consistency Strength of Higher Chang's Conjecture, without CH*, Archive for Mathematical Logic 50 (2011), no. 7, pp. 759–775.
- *Nonregular ultrafilters on ω_2* , J. Symbolic Logic 76 (2011), no. 3, pp. 827–845.
- *Covering theorems for the core model, and an application to stationary set reflection*. Annals of Pure and Applied Logic 161 (2009), pp. 66–93.

Submitted articles and articles in preparation:

- *Martin's Maximum and tower forcing* (joint with Matteo Viale), submitted.
- *Ideal projections as forcing projections* (joint with Martin Zeman), in preparation.
- *Martin's Maximum and tower forcing II* (joint with Matteo Viale), in preparation.

Research Presentations

Expository presentations for general audience:

- *The tree property and elementary embeddings*, Graduate Colloquium, University of Denver math department (September 2011).
- *Some current research in Set Theory*, joint presentation at the Münster SFB Conference (July 2011).
- *The tree property*, Fall 2010 SoCal-Nev Section Meeting of the MAA, UC-Irvine (October 2010).
- *The mathematical uses and philosophical aspects of downward reflection*, MathFest 2009 (Portland, OR).
- *The Löwenheim-Skolem Theorem and countable models*. UC-Irvine Undergraduate Colloquium (May 2009).
- *Relative Consistency in Set Theory*. UC-Irvine Math Graduate Student Colloquium (March 2007).

Short conference and seminar talks:

- Invited to speak at Young Set Theory Workshop (May 2012).
- Invited to speak at Canadian Mathematical Society Winter Meeting (December 2011).
- *Ideal projections as forcing projections*, Logic seminar, University of Torino, Italy (November 2011).
- *Ideal projections as forcing projections*, Oberseminar in Logic, University of Münster (October 2011).
- *Compactness and tower forcing*, UC-Irvine Logic Seminar (October 2011).
- *Martin's Maximum and limitations on presaturated towers*, University of Colorado Boulder logic seminar (September 2011).
- *Martin's Maximum and Tower Forcing*, Oberseminar in Logic, University of Münster (June 2011).
- *Forcing axioms and generic ultrapowers with critical point ω_2* , invited talk at the Carnegie Mellon Logic Seminar (March 2011).
- *Diagonal Stationary Reflection and Generic Ultrapowers*, invited talk at the Cornell University Logic Seminar (February 2011).

- *Diagonal Stationary Reflection and Generic Ultrapowers*, invited talk at the 2011 Mid Atlantic Mathematical Logic Seminar at Harvard University (February 2011).
- *The Diagonal Reflection Principle*, invited talk at the University of Turin, Italy (November 2010).
- *Natural ideals under PFA*, invited talk for Special Session on Large Cardinals and the Continuum, 2010 Fall Western Section Meeting of the AMS, UCLA (October 2010).
- *Forcing Axioms and ideals on ω_2* , Colloquium Logicum 2010, Münster, Germany (September 2010).
- *Nonregularity*, Amsterdam Workshop in Set Theory (June 2010).
- *The Chang Ideal*, invited talk at Universität Bonn Oberseminar (April 2010).
- *Reflection of stationary sets at small cofinalities*. Workshop on Fine Structure and Inner Model Theory, Oberwolfach, Germany (November 2009).
- *Strong ideal properties which yield extenders in the core model*. Annual meeting of the Association for Symbolic Logic, Notre Dame IN (May 2009).
- *Consistency strength of variants of Chang’s Conjecture*. UC-Irvine Logic Seminar (six sessions, Winter and Spring 2009).
- *Consistency Strength of Combinatorial Properties at Small Regular Cardinals*, invited talk at UCLA Logic Colloquium (January 2009).
- *A covering theorem for the core model, with applications*. Invited talk for the special session on set theory, annual meeting of the Association for Symbolic Logic, Irvine, CA (March 2008).
- *Covering properties of the core model*. V.I.G. conference at UCLA (February 2008).

Extended seminar presentations:

- *The Diagonal Reflection Principle and well-determined generic ultrapowers*, UC-Irvine Logic Seminar (two 2-hour sessions, September/October 2011).
- *Forcing axioms and correct models*, Oberseminar in Logic, University of Münster (four 2-hour sessions, December 2010 and January 2011).
- *Catching slender functions*, UC-Irvine Logic Seminar (two 2-hour sessions, October 2010).
- *Moore’s Map Reflection Principle*, Oberseminar in Logic, University of Münster (four 2-hour sessions, May 2010).
- *Stationary set reflection, square, and covering theorems*. Oberseminar in Logic, University of Münster (four 2-hour sessions, November 2009 to January 2010).
- *Weakly normal ultrafilters*. UC-Irvine Logic Seminar (six 2-hour sessions, Fall 2007 and Spring 2008).

Reviews

- *MathSciNet* review of Andrew Brooke-Taylor’s “Indestructibility of Vopěnka’s Principle” (MR2805294).
- *MathSciNet* review of Thilo Weinert’s “The Bounded Axiom A Forcing Axiom” (MR2560728).
- *MathSciNet* review of Sy-David Friedman’s “Forcings which preserve large cardinals” (MR2752958).
- *MathSciNet* review of Arthur Apter’s “Indestructibility, instances of strong compactness, and level by level inequivalence” (MR2726733).

Conferences attended

- Third European Set Theory conference, Edinburgh, Scotland (July 2011).
- Young Set Theory conference, Bonn, Germany (March 2011).
- Appalachian Set Theory conference, Pittsburgh (March 2011).
- Mid Atlantic Mathematical Logic Seminar, Harvard University (February 2011).
- Set Theory Workshop, Torino, Italy (November 2010).
- Fall 2010 SoCal-NeV Section Meeting of the MAA, Irvine, CA (October 2010).
- 2010 Fall Western Sectional Meeting of the AMS, UCLA (October 2010).
- Colloquium Logicum 2010, Münster, Germany (September 2010).
- Conference on the core model induction, Münster, Germany (July-August 2010).

- Amsterdam Workshop in Set Theory (June 2010).
- Young Set Theory Workshop, Vienna, Austria (Feb. 2010)
- Workshop on Fine Structure and Inner Model Theory, Oberwolfach, Germany (Nov. 2009)
- MathFest, Portland OR (Aug. 2009)
- ASL annual meeting, Notre Dame, IN (May 2009)
- Young Set Theory Workshop, Barcelona (April 2009)
- Steel VIG, UCLA (Feb. 2009)
- Joint Mathematics Meetings, Washington D.C. (Jan. 2009)
- VIG conference 2008, UCLA (Feb. 2008)
- ASL annual meeting, Irvine, CA (March 2009)
- Conference in honor of Menachem Magidor, Irvine, CA (Feb. 2006)

Courses Taught

- *Primary Instructor* for the following courses, where my main duties were course planning, teaching, and supervising teaching assistants:
 - Math 2A CALCULUS (Summer 2009, UC-Irvine)
 - Math 2B CALCULUS (Summer 2008, UC-Irvine)
 - Math 6C LINEAR ALGEBRA (Summer 2006, UC-Irvine)
 - Math 6C LINEAR ALGEBRA (Summer 2005, UC-Irvine)
 - Math 6C LINEAR ALGEBRA (Summer 2004, UC-Irvine)
- *Teaching Assistant* for the following courses, where my main duties were leading the discussion/recitation sections and grading:
 - MATH 3A LINEAR ALGEBRA (Summer 2 2008, UC-Irvine)
 - MATH 140A ELEMENTARY ANALYSIS (Winter 2008, UC-Irvine)
 - MATH 121A LINEAR ALGEBRA (Winter 2008, UC-Irvine)
 - MATH 120A INTRO GROUP THEORY (2 sections, Fall 2007, UC-Irvine)
 - MATH 6B BOOLEAN ALG/LOGIC (Spring 2007, UC-Irvine)
 - MATH 4 MATH FOR ECONOMISTS (2 sections, Spring 2007, UC-Irvine)
 - MATH 120A INTRO GROUP THEORY (2 sections, Fall 2006, UC-Irvine)
 - MATH 6C LINEAR ALGEBRA (2 sections, Spring 2006, UC-Irvine)
 - MATH 6B BOOLEAN ALG/LOGIC (2 sections, Winter 2006, UC-Irvine)
 - MATH 2J INF SERS LIN ALG (2 sections, Fall 2005, UC-Irvine)
 - MATH 2D MULTIVAR CALCULUS (2 sections, Spring 2005, UC-Irvine)
 - MATH 2D MULTIVAR CALCULUS (2 sections, Winter 2005, UC-Irvine)
 - MATH 120A INTRO GROUP THEORY (2 sections, Fall 2004, UC-Irvine)
 - MATH 6C LINEAR ALGEBRA (Summer 1 2004, UC-Irvine)
 - MATH 6C LINEAR ALGEBRA (2 sections, Spring 2004, UC-Irvine)
 - MATH 6C LINEAR ALGEBRA (2 sections, Winter 2004, UC-Irvine)
 - MATH 2J SERIES NUMS LIN ALG (2 sections, Fall 2003, UC-Irvine)
 - MATH 2B CALCULUS (Summer 1 2003, UC-Irvine)
 - MATH 6C LINEAR ALGEBRA (2 sections, Spring 2003, UC-Irvine)
 - MATH 2B CALCULUS (2 sections, Winter 2003, UC-Irvine)
 - MATH 2A CALCULUS (Fall 2002, UC-Irvine)

Miscellaneous

- Webmaster for Institut für Mathematische Logik und Grundlagenforschung (Münster, Germany).

References

- *Research references*

- James Cummings, Carnegie Mellon University, *jcumming@andrew.cmu.edu*
 - Matthew Foreman, University of California Irvine, *mforeman@math.uci.edu*
 - Ralf Schindler, University of Münster, *rds@uni-muenster.de*
 - Martin Zeman, University of California Irvine, *mzeman@math.uci.edu*
- *Teaching references*
 - Sarah Eichhorn (formerly Frey), UC-Irvine, *sfrey@math.uci.edu*
 - Larry Chrystal, UC-Irvine, *chrystal@math.uci.edu*