

# CURRICULUM VITAE

## CRISTIAN RIOS

DORWART ASSISTANT PROFESSOR

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### Research Interests:

**Analysis and Partial Differential Equations.**

### Education:

- Doctor of Philosophy, Mathematics, University of Minnesota, 2001.  
Thesis Advisor: Carlos Kenig, University of Chicago.
- M.S. in Mathematics, University of Minnesota, 1998.
- Lic. in Mathematics, Litoral National University, Argentina, 1993.
- Electro-Mechanics, Superior Industrial High-school, Argentina, 1988.

### Publications and Preprints<sup>1</sup>

- C. Rios, E. Sawyer and R. Wheeden, *A higher dimensional partial Legendre transform, and regularity of degenerate Monge-Ampère equations*, *Advances in Mathematics*, 193, 373-415 (2005)
- C. Rios, *The  $L^p$  Dirichlet Problem and Nondivergence Harmonic Measure*, *Trans. AMS*, 355, 2 (2003), 665–687.
- C. Rios,  *$L^p$  regularity of the Dirichlet problem for elliptic equations with singular drifts. To appear.* *Publicacions Matemàtiques*, 50, 2, (2006).
- C. Rios, E. Sawyer and R. Wheeden, *A Priori Estimates for Infinitely Degenerate Quasilinear Equations. Preprint.*
- C. Rios, E. Sawyer and R. Wheeden, *Regularity of Certain Subelliptic Monge-Ampère Equations. Preprint.*
- C. Rios, E. Sawyer and R. Wheeden, *Hypoellipticity for Infinitely Degenerate Quasilinear Equations and the Dirichlet Problem. In preparation.*
- C. Rios and E. Sawyer, *The Monge Ampère equation on domains with degenerate boundary . In preparation.*
- D.Cruz-Uribe SFO and C. Rios *Gaussian Bounds For Degenerate Parabolic Equations. In preparation.*

### Research Grants:

- Research Proposal, *Degenerate Elliptic Operators and the Kato square root problem*, submitted to the Analysis Disciplinary Program (PD 04-1281), National Science Foundation, awaiting review.

### Teaching Experience:

- **Courses Taught**

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<sup>1</sup>Published papers and preprints available at the author's web page.

- Precalculus, Calculus Sequences, Differential Equations.
- Elements of Statistics.
- Mathematics of Finance.
- Real Analysis I and II; Complex Analysis.
- Special topics in Analysis: Fourier Analysis.
- The Mathematics of Industrial Problems; Mathematical Modeling; Elementary Numerical Analysis.
- **Teaching Institutions**
  - Trinity College: *Mathematics Professor*, Sept. 2004–present.
  - McMaster University: *Mathematics Professor*, 2001–2004.
  - University of Minnesota: *Assignments consultant - The Mathematics of Industrial Problems*, 2000–2001.
  - University of Minnesota: *Resource Teaching Assistant*, Sept. 2000.
  - University of Minnesota: *Graduate Teaching Assistant*, 1995– 2000.
  - Litoral National Univ., Argentina: *Teaching Assistant*, 1990–1995.
- **Undergraduate Research Supervisor:** *Classification of four dimensional Quadrics*, Trinity College, Spring 2005.
- **Co-Organizer:** *Second Integration Bee* - Trinity College, 2004.

### Speaker at the following events:

- Prairie Analysis Seminar 2005: Kansas State University, (October 2005).
- NSF/CBMS Conference on New Perspectives for Boundary Value Problems and Their Asymptotics: University of Texas - Pan American (May 2005).
- PDE Seminar, Applied Mathematical Program (AMAL): Santa Fe, Argentina (1999, 2003, 2004).
- Research Program, Institute for Advance Study, PCMI, *Harmonic Analysis and Partial Differential Equations*: Park City, UT (July 2003).
- Workshop - Analysis and Geometric Measure Theory: PIMS, Banff International Research Station (July 2003).
- Advances in Nonlinear Analysis Sessions: Center for Nonlinear Analysis, Carnegie Mellon University (May 2003).
- Fourth, Fifth and Sixth New Mexico Analysis Seminars: Albuquerque (March 2003), Las Cruces (February 2002), Albuquerque (March 2001).
- Harmonic Analysis/Partial Differential Equations Conference: University of Missouri-Columbia (May 2002).
- PDE Seminar (Eugene Fabes): University of Minnesota (November 2000).

### Awards and Fellowships:

- McKay Postdoctoral Fellowship, McMaster University, ON, Canada (2001–2004).
- University of Minnesota Fellowship (June–August 1996).
- Research Fellow, Argentinian Academy of Sciences (CONICET), Santa Fe, Argentina (1993–1995).
- Travel Fellowship. Summer School in Harmonic Analysis and Applications Tanti, Córdoba, Argentina (1992).
- Litoral National University Research Fellowship (1992–1993).
- Runner up National Mathematics Olympics, Argentina (1988).

- First Prize, “Escuela Industrial Superior”, Mathematical Olympics (1985).

## Professional Development:

- Reacting to the Past Pedagogical Conference - Hartford, November 2005.
- MAA - Mathfest Minicourse: Teaching Mathematics of Finance - Albuquerque, August 2005.
- Winter Institute for Teaching - Trinity College, January 2005.
- Teaching Orientation Workshop - Trinity College, August 2004.
- Math Education Research Program - Institute for Advanced Study / Park City Mathematics Institute, August 2003.

## Journals Refereed:

- Electronic Journal of Differential Equations.
- Studia Mathematica.

## Professional Memberships:

- American Mathematical Society.
- Mathematical Association of America.
- Canadian Mathematical Society.

## Other Skills:

- Languages: Fluent in English and Spanish. Intermediate French.
- Computer skills: *Matlab*, *C++*, *Fortran*, *Excel*, *Pascal*, *Basic*, *Cobol*.

## Residence Status:

- Canadian Permanent Resident.

## References:

- **Research References**
  - Carlos E. Kenig: School of Mathematics, University of Chicago.  
(773) 702-7335, cek@math.uchicago.edu
  - Eric Sawyer: Department of Mathematics and Statistics, McMaster University.  
(915) 525-9140 x 23407, sawyer@math.mcmaster.ca
  - Richard Wheeden: Department of Mathematics and Statistics,  
Rutgers University. (732) 445-3487, wheeden@math.rutgers.edu
  - Steve Hofmann: Department of Mathematics, University of Missouri Columbia.  
(573) 884-0616, hofmann@math.missouri.edu
  - Mikhail Safonov: School of Mathematics, University of Minnesota.  
(612) 625-8571, safonov@math.umn.edu
- **Teaching References**
  - David Cruz-Uribe: SFO, Department of Mathematics, Trinity College.  
(860) 297-2297, david.cruzuribe@trincoll.edu
  - David A. Robbins: Department of Mathematics, Trinity College.  
(860) 297-2293, david.robbins@trincoll.edu
  - Nancy J. Wyshinski: Department of Mathematics, Trinity College.  
(860) 297-2221, nancy.wyshinski@trincoll.edu