# Cornelia Mihaila

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**PERSONAL**

Citizenship: United States
Birthplace: Bucharest, Romania

**LANGUAGES**

English (native), Spanish (proficient), Romanian (proficient), Italian (intermediate)

**RESEARCH INTERESTS**

Calculus of variations, partial differential equations, and geometric measure theory

**EDUCATION**

**University of Texas at Austin**, Austin, TX

Ph.D., Mathematics, *Expected:* May 2018
- Adviser: Francesco Maggi, Ph.D

**Wellesley College**, Wellesley, MA

B.A., Mathematics and Biology (double major), May 2012
- *Cum Laude, honors in math*

**RESEARCH EXPERIENCE**

Doctorate research                                             January 2013 to present
  Research in geometric measure theory, calculus of variations, and PDEs
  Advisor: Dr. Francesco Maggi, UT Austin

Undergraduate research                                     August 2011 to May 2012
  Thesis: "Comaximal Ideal Graphs of Commutative Rings"
  Advisor: Dr. Alexander Diesl, Wellesley College

REU at Williams College                                     June 2011 to August 2011
  Research in multidimensional continued fractions,
  Advisor: Dr. Thomas Garrity, Williams College

REU at UC Santa Barbara                                   June 2010 to August 2010
  Research in modified Sylvester equations (a matrix equation),
  Advisor: Dr. Fernando de Tern Vergara, Universidad Carlos III de Madrid

**PUBLICATIONS**

1. *Axial symmetry for fractional capillarity droplets*, C. Mihaila, submitted. Preprint Arxiv: 1710.03421

2. *$L^2$-bubbling into Wulff shapes with $L^2$-almost constant mean curvature and an Alexandrov-type theorem for crystals*, M. G. Delgadino, C. Mihaila, F. Maggi, and R. Neumayer, submitted. Preprint Arxiv: 1705.10117.

3. *On the Shape of Capillarity Droplets in a Container* F. Maggi, C. Mihaila, Calc. Var. PDE. 55(5), Paper no. 122, 42 pp., 2016. Preprint arXiv:1509.03324.

4. *Stern sequences for a family of multidimensional continued fractions: TRIP-Stern sequences*, I. Amburg, K. Dasaratha, L. Flapan, T. Garrity, C. Lee, C. Mihaila, N. Neumann-Chun, S. Peluse, and M. Stoffregen), J. Integer Seq. 20(1), Article 17.1.7, 43, 2017. Preprint Arxiv:1509.05239.

5. *Cubic Irrationals and Periodicity via a Family of Multidimensional Continued Fraction Algorithms* K. Dasaratha, L. Flapan, T. Garrity, C. Lee, C. Mihaila, N. Neumann-Chun, S. Peluse, and M. Stoffregen, Monatsh. Math. 174(4):546-566, 2014. Preprint Arxiv:1208.4244.

6. *A Generalized Family of Multidimensional Continued Fractions: TRIP Maps*, K. Dasaratha, L. Flapan, T. Garrity, C. Lee, C. Mihaila N. Neumann-Chun, S. Peluse, and M. Stoffregen, Int. J. Number Theory 10(8):2151-2186, 2014. Preprint Arxiv:1206.7077.

PRESENTATIONS
1. Bubbling with $L^2$ almost constant anisotropic mean curvature"; Junior Analysis Seminar, Austin, Texas, September 2017.
2. Axial Symmetry for Fractional Capillarity droplets; Contempory Aspects of Analysis, Protaras, Cyprus, May 2017.
3. Properties of Solutions to an Overdetermined Problem with the Fractional Laplacian; Junior Analysis Seminar, Austin, January 2017.
4. The Shape of Capillarity Droplets in a Container; Texas Women in Math Symposium, Austin, November 2016.
5. Axial Symmetry for Symmetric Droplets; Junior Analysis Seminar, Austin, September 2016.
6. The Shape of Capillarity Droplets in a Container; AIMS Conference, Orlando, July 2016.
7. Constant Mean Curvature in the case of Nonlocal Perimeter; Junior Analysis Seminar, Austin, March 2016.
8. Alexandrovs Theorem and the Capillary Droplet; Junior Analysis Seminar, Austin, October 2016.
9. On the Shape of Capillarity Droplets in a Container; Prairie Analysis Seminar, Manhattan, KS, September 2015.
10. Equilibrium Shapes for Liquids in the Small Mass Regime; Candidacy Seminar, Austin, January 2015.
11. Constrained Perimeter Minimization at Small Scale; Junior Analysis Seminar, Austin, Octpber 2014.
12. Soft Stability in the Isoperimetric Type Problem; Junior Analysis Seminar, Austin, April 2014.
13. Equilibrium Shapes for Liquids; Junior Analysis Seminar, Austin, November 2013.
14. Hypergraphs and Their Applications; Sophex Seminar, Austin, February 2013.
15. A Generalized Family of Multidimensional Continued Fractions; K. Dasaratha, L. Flapan, C. Lee, C. Mihaila, N. Neumann-Chun, S. Peluse, M. Stoffregen (advisor: T. Garrity, Williams College); AMS Session on Undergraduate Research, II, Boston, January 2012.

POSTERS
1. Axial symmetry for fractional capillarity droplets; 23rd Rolf Nevanlinna Colloquium, Zurich, Switzerland, June 2017.
2. Pell's Equations for Multidimensional Continued Fractions, (with K. Dasaratha); MAA Undergraduate Poster Session, Boston, January 2012.

AWARDS
- Department Fellowship Award, UT Austin (Spring 2013, Spring 2015)
- The Lewis Atterbury Stimson Prize in Mathematics, Wellesley College, May 2012
- The Martha Davenport Heard Sophomore Prize in Mathematics, Wellesley College, May 2010

TEACHING EXPERIENCE
UT Math Department Teaching Assistant, Austin, TX
- M408N - Differential Calculus      Fall 2017

- M325K - Discrete Mathematics (grading)                  Summer 2017
- M408D - Sequences, Series, and Multivariate Calculus          Spring 2016
- M408N - Differential Calculus                      Fall 2015
- M408C - Differential and Integral Calculus              Fall 2014
- M427K - Advanced Calculus for Applications I             Spring 2014
- UGS 303 - Elements of Effective Thinking                 Fall 2013
- M408L - Integral Calculus                          Fall 2012

MEMBERSHIPS
- Member of the American Mathematical Society
- Member of the Mathematical Association of American
- Member of the Sigma Xi, the Scientific Research Society

SERVICE
- Organizer of graduate Junior Analysis Seminar          August 2017-Present
- Member of the Distinguished Women in Mathematics Lecture Series organizing commitee                                 August 2016-Present
- Speaker at the Saturday Morning Math Group program for high school students, talk titled "Unpuzzling Puzzles"                        October 2017
- Speaker at the Sunday Math Circle program for high school students, talk titled "Knights and Knaves"                              March 2015
- Supervised students in UT's Directed Reading Program in functional analysis, combinatorics, and fractals          Spring 2015, Fall 2015, Fall 2017