

# ALEXANDRA ORTAN

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## RESEARCH INTERESTS

My interests lie in the areas of computational mathematics and numerical analysis. I am also interested in modeling aspects of problems arising from physics.

## EDUCATION

- 2008-current     **Ph.D. Mathematics**  
University of Minnesota, Minneapolis, USA  
Advisor: Fernando Reitich  
Preliminary Exams passed Spring 2009
- 2005-2008     **Baccalaureate of Science - Joint Honours in Mathematics and Physics  
(First Class Honours)**  
McGill University, Montreal, Canada

**SPOKEN AND WRITTEN LANGUAGES - ENGLISH, FRENCH, ROMANIAN.**

**COMPUTER SKILLS: LINUX/UNIX, MAPLE, MATLAB, MATHEMATICA, L<sup>A</sup>T<sub>E</sub>X.**

## RESEARCH EXPERIENCE

- *Scattering of sound waves by the ear canal, summer 2009*  
Advisor: Fadil Santosa, Institute for Mathematics and its Applications
- *Modeling a Protein Repressilator Network, summer 2008*  
Advisor: Jay L. Nadeau, McGill University
- *Optimizing Efficiency of a Geothermal Air Conditioner, 2007-2008*  
Advisor: Burt Tilley, Olin College of Engineering

## TEACHING EXPERIENCE

- Teaching assistant: Linear Algebra & Differential Equations, Calculus II.
- Course grader: Partial Differential Equations.

## WORKSHOPS AND CONFERENCES

- Fields-MITACS Industrial Problem-Solving Workshop, U Toronto, 2008
- Canadian Undergraduate Mathematics Conference, SFU, 2007 - Speaker: *Conformal Maps and their Applications to Electrodynamics*
- Mathematical Problems in Industry Workshop, U Delaware, 2007
- Graduate Student Mathematical Modeling Camp, RPI, 2007
- Quebec Mathematics Association Math Camp, 2005
- Canadian Mathematics Society Math Camp, 2002

## **PUBLICATIONS**

- A. Ortan, V. Quenneville.-Belair, B. Tilley, J. Townsend, *On Taylor dispersion effects for transient solutions in geothermal heating systems*, International Journal of Heat and Mass Transfer, vol 52, issues 21-22, October 2009.
- A. Ortan, V. Quenneville-Belair, *Optimizing Efficiency of a Geothermal Air Conditioner*, McGill Undergraduate Mathematics Magazine, Fall 2007.
- A. Ortan, V. Quenneville-Belair, *The Airplane Boarding Problem*, McGill Undergraduate Mathematics Magazine, Fall 2007.
- A. Ortan, V. Quenneville-Belair, *Euler's Brick*, McGill Undergraduate Mathematics Magazine, Fall 2006.

## **EXTRA-CURRICULAR ACTIVITIES**

Women in Math Coordinator, University of Minnesota, 2009

- Promoting collaboration and support among the women in the mathematics department by organizing various social events
- Helping female math graduate students explore career opportunities by inviting female mathematicians to give talks about their experience

Editor and co-founder of McGill Undergrad. Math. Magazine, McGill University (2006, 2007)

- Supervising the editing process
- Writing mathematical articles

## **COMPETITIONS AND AWARDS**

- Mathematical Contest in Modeling (2008) - Meritorious winner
- Mathematical Contest in Modeling (2007) - Meritorious winner
- Putnam mathematical competition (2006)
- Quebec Mathematics Association Contest (2005) – top 30
- American Invitational Mathematics Examination (2005)
- American Mathematics Contest (2005) – School champion
- Euclid Mathematics Contest (2004, 2005) – top 25%
- Canadian Open Mathematics Challenge (2003, 2004) – top 25%

## **SCHOLARSHIPS**

2008-2010	NSERC Postgraduate Scholarship - PGS M
2008-2010	FQRNT Research Scholarship - B1 , declined
2008	NSERC Undergraduate Student Research Award

## **GRADUATE COURSES**

- Mathematical Modeling and Methods of Applied Mathematics
- Numerical Analysis of Differential Equations
- Partial Differential Equations
- Sparse Matrix Computations
- Numerical Analysis and Scientific Computing
- Real Analysis
- Algebra
- Electromagnetic Theory, General Relativity