

# MAUREEN M. MORTON, PH.D.

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## OBJECTIVE

Obtain fulltime position or summer externship in applied mathematics research at a company or laboratory. Apply creative, analytical, mathematical modeling and generalized problem-solving techniques to patterns in scientific and engineering systems. Strengths and experience in:

- Numerical Analysis & Scientific Computing
- Mathematics Research applied to Plasma Physics, Agriculture, & Biology
- 3 Peer-reviewed Journal Articles
- Big-picture and detail-oriented thinker
- Team and independent worker

## PROFESSIONAL EXPERIENCE

**Mathematics Instructor (Adjunct)** Aug 2013-Present  
Stark State College, North Canton, OH

- Courses taught (6-8/yr): Trigonometry, College Algebra, Precalculus, Statistics, Math for Technology
- Designed and taught Matchless Measures math workshop for Kids' College (Jun 2014)
- Envisioned and implemented *Your Story, Your Community, Your College*, a bi-semester community-building program for students, faculty, and staff (Jul 2014-Present)

**Short-term Contract and/or Grant Work** 2010-2013

- Russian Language Instructor (Kent State University, Kent, OH, Aug 2010-May 2011); AmeriCorps Member (Ravenna, OH, Sep 2011-Sep 2012); Long-term Substitute Teacher (Emmanuel Childcare, Massillon, OH, Apr 2013-Jul 2013)

**Mathematics Graduate Research Assistant & Instructor** Aug 2004-Jun 2010  
Michigan State University, East Lansing, MI

- Conducted original research to improve numerical methods for scientific computing with applications such as biology (summer 2005, summer 2006), optics (Jan 2007-Dec 2007), plasma physics fusion energy (Jan 2008-Jun 2010)
- Co-authored two peer-reviewed journal articles (published 2011, 2014)
- Courses taught (3/yr): College Algebra, Survey of Calculus I/II; Courses tutored: developmental, Trigonometry, Algebra, Calculus, Differential Equations, Analysis

**Visiting Mathematics Research Scholar** Mar 2009-Jun 2009  
Institute for Pure and Applied Mathematics, UCLA, Los Angeles, CA

- Conducted collaborative interdisciplinary research (mathematics & physics) at the long program on *Quantum and Kinetic Transport: Analysis, Computations, and New Applications*
- Presented research results at Culminating Workshop

**Agriculture Research Assistant** May-Aug 2000, Jan-May 2004; Jul-Aug 2005  
Organic and Sustainable Agriculture Lab, Iowa State University, Ames, IA; Horticulture and Crops & Soil Sciences Departments, Michigan State University, East Lansing, MI

- Collected and analyzed data; prepared reports
- Initiated and established protocol for mathematical modeling for laboratory
- Co-authored peer-reviewed journal article (published 2008)
- Supervised assistant; served as liaison between university and farmers

## EDUCATION

**Ph.D. in Applied Mathematics** Jun 2010  
Michigan State University, East Lansing, MI

- Dissertation Title: Integral Deferred Correction Methods for Scientific Computing
- Dissertation Advisor: Andrew J. Christlieb

**B.A. in Mathematics/Russian Language & Literature**  
University of Kansas, Lawrence, KS

May 2003

#### AWARDS & SERVICE

**Recreational Coordinator for Adults & Teens with Developmental Disabilities** Sep 2011-Sep 2012  
POWERcorps, a program of Family & Community Services and Portage County Board of DD, Ravenna, OH

- Planned and implemented recreational, social, and educational activities for adult and teen consumers in groups of 6 - 40
- >900 hours AmeriCorps service

**Industrial Mathematical & Statistical Modeling Workshop Travel Grant** Summer 2006  
Center for Research in Scientific Computation, Raleigh, NC

- Presented team-based project
- Co-authored technical report

**Mathematical Biology Travel Grant** Summer 2005  
Park City Mathematics Institute, Park City, UT

- Presented team-based project

**First Place, Russian Language Essay Contest (Nonheritage Fourth Year)** 2003  
American Association of Teachers of Slavic and East European Languages (AATSEEL)

**National Merit Scholarship** Aug 1999 - May 2003  
University of Kansas, Lawrence, KS

#### PUBLICATIONS

*A high order time splitting method based on integral deferred correction for semi-Lagrangian Vlasov simulations.* A. Christlieb, W. Guo, M. Morton, and J.-M. Qiu. *J. Comp. Phys.*, v 267, pp 7-27, 2014

*Semi-implicit integral deferred correction constructed with additive Runge-Kutta methods.* A. Christlieb, M. Morton, B. Ong, and J.-M. Qiu. *Commun. Math. Sci.*, v 9(3), pp 879-902, 2011

*Seed priming of winter annual cover crops improves germination and emergence.* S. Snapp, R. Price, and M. Morton. *Agronomy Journal*, v 100, pp 1506-1510, 2008

*Analysis of biological interaction networks for drug discovery.* A. Baker, M. Jung, C. Lee, I. Maslova, M. Morton, J. Wang. CRSC Technical Report: CRSC-TR06-23, pp 119-157. Industrial Mathematical & Statistical Modeling Workshop for Graduate Students, Center for Research in Scientific Computation, Raleigh, NC, 2006

#### INVITED & CONTRIBUTED TALKS

*Integral deferred correction methods for multi-scale and nonlinear problems.* (Invited). Case Western Reserve University: Applied Mathematics Seminar, Cleveland, OH, April 2019

*High order split integral deferred correction methods for Vlasov equations.* (Invited). SIAM Annual Meeting, Pittsburgh, PA, Jul 2010

*Higher order split integral deferred correction methods for partial differential equations.* (Contributed). AMS Joint Mathematics Meetings, San Francisco, CA, Jan 2010

*Integral deferred correction methods for multi-scale problems.* (Invited). Colorado School of Mines: Mathematical and Computer Sciences Colloquium, Golden, CO, Oct 2009

*Arbitrary order semi-implicit methods and extension to asymptotic preserving framework.* (Contributed). Institute for Pure and Applied Mathematics: Culminating Workshop, Lake Arrowhead, CA, Jun 2009

*Efficient higher order semi-implicit time integration with integral deferred correction and additive Runge-Kutta.* (Contributed). SIAM Conference on Computational Science and Engineering, Miami, FL, Mar 2009