

Department of Mathematics  
Western Kentucky University  
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**EDUCATION****Universite de la Mediterranee Aix-Marseille II, France**

1998 Ph.D. in Fluid Mechanics (diploma with honor)  
Advisor: Dr. Bernard Roux  
Thesis: *Stability of the Vibration-Induced Flows in the Continuously Stratified Fluid and in the System of two Immiscible Fluids of Different Densities*

**Perm State University**

1998 Ph.D. in Physical Applied Mathematics (diploma with honor)  
Advisor: Professor Dmitrii V. Lyubimov  
1994 M.S. in Physics (diploma with honor)  
1992 B.S. in Physics

**PROFESSIONAL HISTORY**

8/2009 – Assistant Professor,  
Department of Mathematics,  
Western Kentucky University, Bowling Green, KY

8/2002 – 8/2009 Assistant Professor,  
Department of Mathematics,  
University at Buffalo, SUNY, Buffalo, NY

8/2000 – 8/2002 Postdoctoral Researcher (with teaching responsibilities),  
Department of Mathematical Sciences,  
University of Delaware, Newark, DE,  
Advisor: Prof. Richard J. Braun

12/1998 – 6/2000 Postdoctoral Researcher,  
Department of Computer Science,  
Tel Aviv University, Israel,  
Advisor: Prof. Amir Averbuch

**RESEARCH INTERESTS**

Mathematical modeling of thin liquid and solid films, numerical methods for problems with interfaces and free boundaries, pattern formation and self-organization, stability, bifurcation and control, partial differential equations

**FINANCIAL SUPPORT**

FY 2011 Summer Undergraduate Research Fellowship at the National Institute of Science and Technology (SURF Gaithersburg ), \$7,925 for a student (funded on April 25, 2011)

WKU New Faculty Scholarship #10-7016, \$4,000, 10/20/2009-10/20/2011: `` Mathematical Models and Numerical Methods for Nanosprings Growth and Solid Film Dewetting''

WKU Summer 2010 Faculty Scholarship #10-7054, \$6,000, 10/20/2009-10/27/2010: `` Mathematical and Computational Modeling of Nanostructure Self-Assembly in Pulsed Laser-Melted Metallic Films''

**RESEARCH PUBLICATIONS****Papers published in refereed journals:**

1. S. Shklyaev, M. Khenner, and A.A. Alabuzhev, ``Long-wave Marangoni convection in a thin film heated from below'', *Physical Review E* **85**, 016328 (2012).
2. M.Khenner, S. Yadavali, and R. Kalyanaraman, ``Formation of organized nanostructures from unstable bilayers of thin metallic liquids'', *Physics of Fluids* **23**, 122105 (2011). (Selected and featured in the Virtual Journal of Nanoscale Science and Technology 25(2), 2012, published by AIP and APS.)
3. M. Khenner, W.T. Tekalign, and M. Levine, ``Stability of a strongly anisotropic thin epitaxial film in a wetting interaction with elastic substrate'', *European Physics Letters* **93**, 26001 (2011).
4. H. Krishna, R. Sachan, J. Strader, C. Favazza, M. Khenner, and Ramki Kalyanaraman, ``Thickness-dependent spontaneous dewetting morphology of ultrathin Ag films'', *Nanotechnology* **21**, (2010) 155601.
5. S. Shklyaev, M. Khenner, and A.A. Alabuzhev, ``Oscillatory and monotonic modes of longwave Marangoni convection in a thin film'', *Physical Review E* **82**, (2010) 025302R.
6. P. Du, M. Khenner, and H. Wong, ``A tangent-plane marker-particle method for the computation of three-dimensional solid surfaces evolving by surface diffusion on a substrate'', *Journal of Computational Physics* **229**, (2010) 813-827.
7. A. Atena and M. Khenner , ``Thermocapillary effects in driven dewetting and self-assembly of pulsed laser- irradiated metallic films'', *Physical Review B* **80**, (2009) 075402. (Selected and featured in the Virtual Journal of Nanoscale Science and Technology 20(7), 2009, published by AIP and APS.)
8. S. Shklyaev, A.A. Alabuzhev and M. Khenner, ``Influences of a longitudinal and tilted vibration on stability and dewetting of a liquid film'', *Physical Review E* **79**, (2009) 051603.
9. M. Khenner , ``Comparative study of a solid film dewetting in an attractive substrate potentials with the exponential and the algebraic decay'', *Mathematical Modeling of Natural Phenomena* **3(5)**, (2008) 16-29. (Invited paper.)
10. M. Khenner , ``Morphologies and kinetics of a dewetting ultrathin solid film'', *Physical Review B* **77**, (2008) 245445.

11. M. Khenner, "Dewetting of an ultrathin solid film on a lattice-matched or amorphous substrate", *Physical Review B* **77**, (2008) 165414.
12. S. Shklyaev, M. Khenner, and A.A. Alabuzhev, "Enhanced stability of a dewetting thin liquid film in the single-frequency vibration field", *Physical Review E* **77**, (2008) 036320.
13. M. Khenner, "Tailoring of Crystal Surface morphology by Induced Spatio-Temporal Oscillations of Temperature", *Physical Review E* **75**, (2007) 021605.
14. M. Khenner and V.K. Henner, "Temperature of Spatially Modulated Surface of Solid Film Heated by Repetitive Laser Pulses", *Journal of Physics D: Appl. Phys.* **38**, (2005) 4196-4201.
15. M. Khenner, "Influence of Pulsed Laser Heating on Morphological Relaxation of Surface Ripple", *Physical Review E* **72**, (2005) 011604.
16. M. Khenner and R.J. Braun, "Numerical Simulation of Liquid Phase Electro-Epitaxial Selective Area Growth", *Journal of Crystal Growth* **279**, (2005) 213-228.
17. M. Khenner, "Motion of Contact Line of a Crystal Over the Edge of Solid Mask in Epitaxial Lateral Overgrowth", *Computational Materials Science* **32**, (2005) 203-216.
18. M. Khenner, "Computation of the Material Indicator Function Near the Contact Line (in Tryggvason's method)", *Journal of Computational Physics* **200**, (2004) 1-7.
19. M. Khenner, "Enhancement of Epitaxial Lateral Overgrowth by Vapor-Phase Diffusion", *International Journal of Engineering Science* **42**, (2004) 1439-1457.
20. M. Khenner, R. J. Braun and M. G. Mauk, "A Model for Anisotropic Epitaxial Lateral Overgrowth", *Journal of Crystal Growth* **241**, (2002) 330-346.
21. M. Khenner, R. J. Braun and M. G. Mauk, "A Model for Isotropic Crystal Growth from Vapor on a Patterned Substrate", *Journal of Crystal Growth* **235**, (2002) 425-438.
22. M. Khenner, A. Averbuch, M. Israeli, M. Natah and E. Glickman, "Level Set Modeling of Transient Electromigration Grooving", *Computational Materials Science* **20**, (2001) 235-250.
23. M. Khenner, A. Averbuch, M. Israeli and M. Nathan, "Numerical Simulation of Grain Boundary Grooving by Level Set Method", *Journal of Computational Physics* **170**, (2001) 764-784.
24. M. Nathan, E. Glickman, M. Khenner, A. Averbuch and M. Israeli, "Electromigration Drift Velocity in *Cu* Interconnects Modeled with the Level Set Method", *Applied Physics Letters* **77**, (2000) 3355-3357.
25. M. V. Khenner, D.V. Lyubimov, T. S. Belozerova and B. Roux, "Stability of Plane-Parallel Vibrational Flow in a Two-Layer System", *European Journal of Mechanics B/Fluids* **18**, (1999) 1085-1101.
26. M. V. Khenner, D.V. Lyubimov and M. M. Shotz, "Stability of a Fluid Interface Under Tangential Vibrations", *Fluid Dynamics* **33**, (1998) 318-323.
27. M. V. Khenner and D. V. Lyubimov, "On Stability of Plane-Parallel Vibrational Flow of a Stratified Fluid", *Hydrodynamika* **11**, (1998) 197-207 (in Russian).

28. M. V. Khenner and D.V. Lyubimov , “On Longwave Instability of Fluid-Fluid Interface Under Tangential Vibration”, *Hydrodynamika* **11**, (1998) 191-196 (in Russian).

**Papers published in refereed conference proceedings:**

1. M. Khenner , “Control of Growth and Morphology of a Crystal Surface by induced Spatio-Temporal Oscillations of Surface Temperature”, *Mater. Res. Soc. Symp. Proc.* Vol. **960**, (2007) paper #0960-N03-03.
2. M. Khenner , “Oscillatory Temperature-driven Morphological Relaxation of Surface Ripple Using Weak Pulsed Laser”, *Mater. Res. Soc. Symp. Proc.* Vol. **890**, (2006) paper #0890-Y07-03.1.
3. M.V. Khenner, D.V. Lyubimov, B. Roux and S.V. Shklyaev, “The Application of Parallel Computations Technique to the Solution of Certain Hydrodynamic Stability Problems”, *Lecture Notes in Computer Science* **1277**, (1997) 40-44 (Proceedings of the 4<sup>th</sup> International Conference on Parallel Computing Technologies, Yaroslavl, Russia).

**Papers accepted:**

M. Khenner , S. Yadavali and R. Kalyanaraman, “Controlling nanoparticles formation in molten metallic bilayers by pulsed-laser interference heating”, to appear in *Mathematical Modeling of Natural Phenomena* (Ed. A.A. Nepomnyashchy, invited paper).

**Papers submitted:**

**EDUCATIONAL PUBLICATIONS**

V.K. Henner, T.S. Belozerova, and M. Khenner, “Differential Equations” – undergraduate textbook; accepted by Taylor and Francis, March 2012

**INVITED PRESENTATIONS ((O): Oral; (P): Poster)**

1. *Analysis of a model for dewetting of the pulsed laser-melted thin metallic films*, The 9<sup>th</sup> Annual Conference on Frontiers in Applied and Computational Mathematics (FACM’12), New Jersey Institute of Technology, May 18, 2012 (O)
2. *Modeling diverse physics of nanoparticle self-assembly in pulsed laser-irradiated metallic films*, Physics Colloquium, Western Kentucky University, April 25, 2011 (O)
3. *Towards new routes of particle self-assembly: modeling effects on morphology of spatiotemporal variations of temperature created by pulsed laser irradiation*, Applied Mathematics Seminar, University of Kentucky, November 8, 2010 (O)

4. *Morphological Evolution of Single-Crystal Ultrathin Solid Films*, Physics Colloquium, Western Kentucky University, March 29, 2010 (O)
5. *Mathematical modeling of driven dewetting and self-assembly of pulsed laser-irradiated metallic films*, Applied Mathematics Colloquium, Wright State University (Dayton, OH), October 9, 2009 (O)
6. *Stability and dynamics of a dewetting ultrathin solid film*, Applied Mathematics Seminar, Western Kentucky University, April 13, 2009 (O)
7. *Dynamics and morphologies of a dewetting ultrathin solid film*, Applied Mathematics Colloquium, Rochester Institute of Technology, May 22, 2008 (O)
8. *Faceting of a Crystal Surface by Surface Diffusion*, Workshop on Nonlinearity & Randomness in Complex Systems, Department of Mathematics, SUNY at Buffalo, March 31, 2006 (O)
9. *Modeling of Crystal Growth on a Masked Substrate*, Society for Industrial and Applied Mathematics (SIAM) Conference on Mathematics for Industry: Challenges and Frontiers (Toronto, Canada, 2003) (O)
10. *Models for Selective Area Epitaxial Crystal Growth*, SIAM Conference on Applications of Dynamical Systems (Snowbird, UT, 2003) (O)
11. *Computational model for Liquid Phase Electroepitaxial Crystal Growth on Partially Masked Substrate*, Interdisciplinary Seminar, Perm State University, Russia (2003) (O)
12. *Models for Selective Area Epitaxial Crystal Growth*, Applied Mathematics Colloquium, Northwestern University (Evanston, IL, 2002) (O)
13. *Numerical Modeling for Epitaxial Semiconductor Crystal Growth From Vapor on a Masked Substrate*, Thirteenth American Conference on Crystal Growth and Epitaxy (Burlington, VT, 2001) (O)
14. *Numerical Study of Grain Boundary Grooving in Polycrystalline Cu Lines by Level Set Method*, Meeting on Large-Scale Computations in the Simulation of Materials, Carnegie Mellon University (Pittsburgh, PA, 2000) (O)
15. *Stability of Plane-Parallel Vibrational Flow in a Two-Layer System*, Mechanics Seminar, Laboratoire de modelisation en mecanique, Universite Pierre et Marie Curie, Paris, France, (2000) (O)
16. *Surface/Grain Boundary atomic Diffusion Induced by Electric Fields and the Curvature Gradient of the Sample*, Physics Colloquium, University of Louisville (Louisville, KY, 2000) (O)

**CONTRIBUTED CONFERENCE PRESENTATIONS ((O): Oral; (P): Poster):**

1. *Modeling Nanopatterning of Ultrathin Metallic Bilayers by Pulsed Laser Induced Dewetting*, First Annual Kentucky Nanotechnology Symposium (Bowling Green, KY; March 30-31, 2012) (P)

2. *Model and Computations of Pulsed Laser Induced Dewetting in Thin Metallic Films*, Fall Meeting of the Materials Research Society (Boston, MA; Nov 28-Dec 2, 2011) (P)
3. *Lubrication approximation-based model and computations of pulsed laser-induced dewetting in thin metallic films*, 48<sup>th</sup> Annual Technical Conference of the Society of Engineering Sciences (Evanston, IL, Oct. 11-15, 2011) (O)
4. *Self-organized nanostructures from pulsed-laser melted, unstable bilayers of thin metallic liquids*, 4<sup>th</sup> Annual Nanotechnology Symposium, Sullivan University (Louisville, KY, Sept. 23-24, 2011) (P)
5. *Dynamical models of nanopatterning in pulsed laser-irradiated single layer and bilayer metallic films*, SIAM Southeast-Atlantic Section Conference (Charlotte, NC, March 26-27, 2011) (O)
6. *Effects of Wetting and Anisotropy on Stability and Morphological Evolution of Ultrathin Solid Films*, SIAM Conference on Mathematical Aspects of Materials Science (Philadelphia, PA; May 23-26, 2010) (O)
7. *Thermocapillary effects in driven dewetting and self-assembly of pulsed laser- irradiated metallic films*, MRS Fall Meeting (Boston, MA; Nov. 30 – Dec. 2, 2009) (O)
8. *Stability and dynamics of a dewetting ultrathin solid film*, Pacific Northwest Conference on Comprehensive Mathematical Modeling in the Natural and Engineering Sciences, Organized in the Spirit of L. A. Segel, (Washington State University, WA; June 3-6, 2009) (O)
9. *A tangent plane, marker-particle method for the computation of 3D solid surfaces evolving on a substrate*, SIAM Conference on Mathematical Aspects of Materials Science (Philadelphia, PA; May 11-14, 2008) (O)
10. *Control of Growth and Morphology of a Crystal Surface by induced spatio-temporal oscillations of surface temperature*, Fall Meeting of the Materials Research Society (Boston, MA; Nov 26-Dec 1, 2006) (O)
11. *Oscillatory Temperature- driven morphological relaxation of surface ripples using weak pulsed laser*, Fall Meeting of the Materials Research Society (Boston, MA; Nov 28-Dec 2, 2005) (O)
12. *Motion of Contact Line of a Crystal Over the Edge of Solid Mask in Selective Area Epitaxy*, SIAM Conference on Mathematical Aspects of Materials Science (Los Angeles, CA; May 23-26, 2004) (P)
13. *Computational Model for Liquid Phase Electroepitaxial Crystal Growth on Partially Masked Substrate*, American Physical Society (APS) March Meeting (Austin, TX 2003) (O)
14. *Numerical Modeling for Vapor Phase Epitaxial Lateral Overgrowth*, APS March Meeting (Indianapolis, IN 2002) (O)
15. *Mathematical Model for Epitaxial Semiconductor Crystal Growth On a Masked Substrate by Surface Diffusion*, Interphase – 2001 (University of Maryland, College Park, MD) (O)

16. *Numerical Modeling for Epitaxial Semiconductor Crystal Growth from Vapor on a Masked Substrate*, SIAM Annual Meeting (San Diego, CA 2001) (O)
17. *On Stability of Vibrationally Induced Flow of a Mixture*, XII International School on Fluid Mechanics (Perm, Russia 1999) (O)
18. *The Application of Parallel Computations Technique to the Solution of Certain Hydrodynamic Stability Problems*, Parallel Computing Technologies (Yaroslavl, Russia, 1997; refereed article published in the Proceedings, see publications) (P)
19. *On Stability of a Liquid Interface to Tangential Vibrations*, XI International School on Fluid Mechanics (Perm, Russia; 1997) (O)

### **PRESENTATIONS OF JOINT RESEARCH BY THE COLLABORATORS**

1. *Nonlinear regimes of monotonic and oscillatory Marangoni convection*, The 4<sup>th</sup> International symposium "Bifurcation and instabilities in fluid dynamics" (BIFD2011), Barcelona, Spain, 18-21th July 2011 (presented by A. Alabuzhev) (O)
2. *Longwave Marangoni convection in a thin film heated from below*, Seminar of the group Prof. Dr. Michael Bestehorn, Lehrstuhl Theoretische Physik / Statistische Physik und Nichtlineare Dynamik, Brandenburgische Technische Universitaet Cottbus, July 5, 2011 (presented by S. Shklyaev) (O)
3. *Longwave Oscillatory Mode in Marangoni Convection*, The 5<sup>th</sup> International Marangoni Association Conference: Interfacial Fluid Dynamics and Processes, Florence, Italy, June 4 - June 8, 2010 (presented by A. Alabuzhev) (O)
4. *Influence of a vibration on the dynamics of a thin liquid film*, Third Russian Conference "Free Boundary Problems: theory, experiment and applications", Byisk, Russia; June 28 – July 3, 2008 (presented by S. Shklyaev) (O)
5. *Grain boundary Grooves as the Carriers of Electromigration*, International Conference on Materials Science and Technologies (AGIL), Jerusalem, Israel 2000 (presented by E. Glickman) (O)

### **WORKSHOPS**

Mathematical Problems in Industry (Rensselaer Polytechnic Institute, Troy, NY, 2002)

### **CONTRIBUTED SEMINARS AND COLLOQUIA TALKS**

1. 31<sup>st</sup> Annual Mathematics Symposium, Western Kentucky University, October 28, 2011
  - *Analysis of Liquid Film Stability Using Differential Equations*
2. Mathematics Graduate Students Seminar, Western Kentucky University, September 15, 2011
  - *Stability Analysis of Pulsed Laser-Melted Bilayer Thin Films*
3. Mathematics Graduate Students Seminar, Western Kentucky University, February 5, 2010
  - *Analytical and Computational Modeling of the Stability and Dynamics of a*

*Dewetting Ultrathin Solid Film*

4. 29<sup>th</sup> Annual Mathematics Symposium, Western Kentucky University, November 5, 2009
  - *Using PDEs to model the dynamics of thin films: A mathematical model of dewetting in pulsed-laser irradiated metallic films*
5. Applied Mathematics Seminar, University at Buffalo, Buffalo, NY (2002-2007)
  - *Computational Modeling of three-dimensional Rayleigh instability of deposited thin-film wires-Part I, Numerical Method and its validation*
  - *Geometric Evolution Equations*
  - *Model for Morphological Relaxation of Surface Ripples Due to Pulsed Laser Heating*
  - *Stability of a Fluid Interface under Tangential Vibrations*
  - *Numerical Modeling of Liquid Phase Electroepitaxial Selective Area Crystal Growth (LPEESAG)*
  - *Numerical Modeling for Epitaxial Semiconductor Crystal Growth From Vapor on a Masked Substrate*
6. Chemical Engineering Seminar, University at Buffalo, Buffalo, NY (2004)
  - *Modeling of Epitaxy on a Masked Substrate*
7. Applied Mathematics Seminar, University of Delaware, Newark, DE (2000-2002)
  - *Survey of the Numerical Modeling for GaAs Epitaxial Crystal Growth on Masked Substrate by Surface-Tracking Method and of the GB Grooving in Polycrystalline Cu Lines by Surface-Capturing (e.g. Level Set) Method*
  - *Numerical Modeling for Epitaxial Semiconductor Crystal Growth From Vapor on a Masked Substrate*
  - *Numerical Study of Grain Boundary Grooving in Polycrystalline Cu Lines by Level Set Method*
8. Applied Mathematics Seminar, Tel Aviv University, Israel (2000)
  - *Modeling GB Grooving by Level Sets*
9. Fluid Mechanics Seminar, Univeriste de la Mediterranee, Marseille, France (1995-1998)
  - Multiple talks
10. Fluid mechanics Seminar, Perm State University, Russia (1995-1998)
  - Multiple talks

**MEMBERSHIP IN PROFESSIONAL SOCIETIES**

American Physical Society, 2001-present  
 Society for Industrial and Applied Mathematics, 2003-present  
 Materials Research Society, 2005-present  
 Kentucky Academy of Science, 2010-present  
 Society of Engineering Sciences, 2011-present

**CROSS-DISCIPLINARY MEMBERSHIPS**

Applied Physics Institute at WKU , 2010 – present

**REVIEWED SUBMISSIONS TO THE FOLLOWING JOURNALS:**

Physical Review Letters  
 Physical Review B, E  
 Journal of Computational Physics

Journal of Applied Physics  
Philosophical Magazine  
Journal of Applied Mechanics  
Materials Science and Engineering B  
Computer Physics Communications  
ACS Nano  
Applied Physics Letters  
Thin Solid Films

### **PROFESSIONAL ACTIVITIES**

Chair of Organizing Committee, 31<sup>st</sup> Annual Mathematics Symposium at Western Kentucky University (2011)  
Session Organizer, “*Models and methods for capillarity-driven evolution of solid surfaces*”, at the SIAM Conference on Mathematical Aspects of Materials Science (Philadelphia, PA, 2008)  
Session Chair, “*Ion and Photon Induced Nanostructures: Characterization and Applications*” at the MRS Fall Meeting (Boston, MA, 2006)  
Session Chair, “*Materials Modeling*” at the SIAM Annual Meeting (San Diego, CA, 2001)

### **PRESENT AND PAST COLLABORATORS**

Michel Jabbour (Mathematics, University of Kentucky, faculty)  
Ramki Kalyanaraman (Materials Science & BioChemical Engineering, University of Tennessee at Knoxville, faculty)  
Margo Levine (Department of Radiology at Massachusetts General Hospital and Harvard Medical School, Scientist)  
Jae-hun Jung (Mathematics, University at Buffalo, faculty)  
Wondimu Tekalign (Mathematics, Rochester Inst. of Technology, faculty)  
Sergey Shklyaev (Chemical Engineering, Caltech & ICMM, Perm, faculty)  
Harris Wong (Mechanical Engineering, Louisiana State University, faculty)  
Victor Henner (Physics, UofL and Perm State University, faculty)  
Richard J. Braun (Mathematics, University of Delaware, faculty)  
Michael Mauk (Astro Power, Inc., senior scientist)  
Amir Averbuch (Computer Science, Tel Aviv University, faculty)  
Evgeny Glickman (Materials Science, Tel Aviv University, faculty)  
Moshe Israeli (Computer Science, Technion, faculty)  
Menachem Nathan (Materials Science, Tel Aviv University, faculty)

### **TEACHING**

#### **Department of Physics, Perm State University, Russia**

Mathematical Physics (second year graduate course)  
Theoretical Mechanics (third year graduate course)

#### **Department of Mathematical Sciences, University of Delaware**

Ordinary Differential Equations (second year undergraduate course)  
Calculus (second semester, undergraduate course)  
Calculus for Business and Economics (first semester undergraduate course)

**Department of Mathematics, University at Buffalo**

Fall 2002	141	College Calculus I
Spring 2003	141 438/538	College Calculus I Intro to Numerical Analysis II
Fall 2003	241	College Calculus II
Spring 2004	438/538	Intro to Numerical Analysis II
Fall 2004	306 437/537	Intro to Differential Equations Intro to Numerical Analysis I
Spring 2005	121 438/538	Surv. Calc & Appl I Intro to Numerical Analysis II
Fall 2005	306 437/537	Intro to Differential Equations Intro to Numerical Analysis I
Spring 2006	306 438/538	Intro to Differential Equations Intro to Numerical Analysis II
Fall 2006	306 418/518 801	Intro to Differential Equations Survey of Partial Diff. Equations Reading and Conference
Spring 2007	on leave	
Fall 2007	306 418/518 800 801	Intro to Differential Equations Survey of Partial Diff. Equations Thesis Guidance Reading and Conference
Spring 2008	306 438/538 800 801	Intro to Differential Equations Intro to Numerical Analysis II Thesis Guidance Reading and Conference
Fall 2008	306 437/537 800 801	Intro to Differential Equations Intro to Numerical Analysis I Thesis Guidance Reading and Conference
Spring 2009	306 438/538 800 801	Intro to Differential Equations Intro to Numerical Analysis II Thesis Guidance Reading and Conference

**Department of Mathematics, Western Kentucky University**

Fall 2009, Spring 2010 331 Differential Equations

Summer 2010	531	Advanced Differential Equations
Fall 2010	117 350 471/471G	Trigonometry Advanced Engineering Mathematics Introduction to Operations Research
Spring 2011	136	Calculus I
Summer 2011	137	Calculus II
Fall 2011	137	Calculus II
Spring 2012	137 370	Calculus II Applied Techniques in Mathematics

## **STUDENTS**

### **Undergraduate Students:**

Yingrui Liu	Honor's Thesis, April 2009 (Principal Advisor: Dr. Avner Peleg)
Jonathan Newton	Fall 2010 Senior Research Seminar (MATH 498): `` <i>Mathematical Analysis of Equilibrium of Self-Gravitating Spherical Stars</i> ''
Derrick Johnson	Fall 2010 Research Seminar (MATH 398): `` <i>Implementation of the Simplex Method in Mathematica</i> ''
Derrick Johnson	Spring 2011 Senior Research Seminar (MATH 498): `` <i>Polynomial Approximation: Theory and Examples</i> ''
Kurt Woods	Fall 2011 Senior Research Seminar (MATH 498): `` <i>An Analysis of the Electromigration of Atoms Along a Crystal Surface Using the Method of Lines</i> ''

### **Masters Students (University at Buffalo):**

William Chapman	Graduated in June 2006; Thesis: `` <i>An exploration of modified Mathieu equation</i> ''
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### **PhD Students (University at Buffalo):**

Agegnehu Atena	Graduated in December 2009; Thesis title: "Thermocapillary effects in driven dewetting and self-assembly of pulsed laser-irradiated metallic films"  Current employment: Tenure-track Assistant Professor at the Department of Mathematics, Savannah State University, GA
Phu Doc Vu	Graduated in August 2009; Thesis title: "Grid-based and meshless methods for the computation of the curvatures and related local geometric quantities of a 3D surface"  Currently employed by the Hanoi University, Vietnam

**COMMITTEE MEMBERSHIPS****University:**

2010-12 University Senate  
 2010-11 University Curriculum Committee

**College:**

2011-12 Ogden College Sabbatical Committee, Informatics Committee

**Departmental:**

2011-12 Colloquium/Symposium Committee (Chair), Computer Lab Committee,  
 Scholarship/Award Committee  
 2010-11 Undergraduate Studies Committee, Numerical Analysis Course Committee, Colloquium  
 Committee  
 2009-10 Undergraduate Studies Committee, Numerical Analysis Course Committee,  
 Trigonometry Textbook Committee  
 August 2009: PhD Dissertation Committee of Phu Vu  
 December 2009: PhD Dissertation Committee of Agegnehu Atena; Undergraduate Honor's Thesis  
 Committee of Brandon Rigsby

2005-09 Applied Mathematics Committee  
 Undergraduate Studies Committee  
 Exam Proctors Committee  
 Colloquium Committee  
 April 2008: PhD Dissertation Committee of Antonio Mastroberardino

2004-05 Applied Mathematics Committee  
 Exam Proctors Committee  
 Colloquium Committee

2002-04 Applied Mathematics Committee  
 Exam Proctors Committee

**Undergraduate Student Advising**

Kurt Woods, Stephen Farmer, Richard Pape, Tyler Rhoades (2011-2012)

**MEDIA REPORTS**

**Mathematics major receives summer fellowship at national laboratory (April 4, 2011)**

<http://wkunews.wordpress.com/2011/04/04/nist-johnson/>