

Guy Bernard

CURRICULUM VITAE

August 29, 2023

Professional Address: Department of Mathematics
Midwestern State University
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Citizenship: Canada

Immigration Status: US Permanent Resident (green card) A# 018-807-209
Resident since 09/12/2006

Languages Spoken: English and French

Area of Research: Partial Differential Equations

Education

- 1) Ph.D. Mathematics, University of Minnesota Aug 93
Thesis: An Inhomogeneous Semilinear Elliptic Equation on \mathbb{R}^n .
Advisor: Professor Wei-Ming Ni.
- 2) M.Sc. in Mathematics, University of British Columbia Sep 87
Project: Foundations of Thermodynamics.
Advisor: Professor John Heywood.
- 3) M.A.Sc.-Applied Mathematics, Ecole Polytechnique (Montreal) Mar 84
Thesis: Numerical Method to solve the compressible
Navier-Stokes. Equations.
Advisor: Professor Ricardo Camarero.
- 4) B. Eng.- Mechanical Engineering, Ecole Polytechnique (Montreal) May 77

Employment

- 1) Midwestern State University Aug 05-present.
Position: Professor since Sep 18
Associate Professor since Sep 10
Assistant Professor Aug 05-Aug 10)
Duties: Research. Teaching.
Please refer to **Teaching Responsibilities**.
- 2) South Dakota State University Aug 03-May 05.
Position: Assistant Professor (fixed term)
Duties: Research. Teaching Calculus I and III,
Differential Equations, Survey of Calculus,
Partial Differential Equations (graduate course).
- 3) University of Central Arkansas Aug 00-May 03.
Position: Assistant Professor (fixed term)
Duties: Research. Teaching Calculus I, II, and III,
Linear Algebra, Business Calculus.
- 4) Acadia University (Nova Scotia) Aug 99- May 00
Position: Assistant Professor (fixed term)
Duties: Research. Teaching Integral Calculus,
Calculus of Several Variables,
General Calculus and Linear Algebra.
- 5) The Pennsylvania State University (University Park) Aug 97- Aug 99
Position: Assistant Professor (fixed term)
Duties: Research. Teaching Calculus I and II.
- 6) Bishop's University (Quebec) Aug 96-Jul 97
Position: Assistant Professor (fixed term)
Duties: Research. Teaching Calculus I and II,
Differential Equations I and II,
Numerical Analysis, Metric Spaces and Topology.
- 7) The Pennsylvania State University (University Park) Aug 95-Aug 96
Position: Assistant Professor (fixed term)
Duties: Research. Teaching Calculus I and II
- 8) University of Ottawa (Ontario) Jul 94- Jul 95
Position: Assistant Professor (fixed term)
Duties: Research. Teaching Differential Calculus,
Applied Linear Algebra, Linear Algebra (business)
- 9) Royal Roads Military College (British Columbia) Aug 93-Jun 94
Position: Assistant Professor (fixed term)
Duties: Research. Teaching Calculus I, Linear Algebra,
Series and Differential Equations.
- 10) University of Minnesota Sep 86-Aug 93
Position: Teaching Assistant (graduate student)
Duties: Teaching Calculus I, Trigonometry,
College algebra.

- 11) University of British Columbia Sep 83- Aug 86
 Position: Teaching Assistant (graduate student)
 Duties: Teaching Calculus I and grading.
- 12) Pratt and Whitney Aircraft of Canada Ltd.
 Position: Aerodynamicist Jan 82-Sep 82
 Facilities Engineer Aug 78-Dec 80
 Test Engineer Jul 77-Aug 78
 Duties: Aerodynamicist: Calculations for the design of turbines and compressors and analysis of experimental data of components of gaz turbine engines. Facilities Engineer: Plan the design and building of test facilities.
 Test Engineer: Oversee the testing of turbofan engines.

Teaching Responsibilities
(at Midwestern State University)

- 1) Math 0233 Developmental Supplement for College Algebra
- 2) Math 1053 Contemporary Mathematics
- 3) Math 1203 Mathematical Analysis for Business
- 4) Math 1233 College Algebra
- 5) Math 1433 Plane Trigonometry
- 6) Math 1534 Precalculus
- 7) Math 1634 Calculus I
- 8) Math 1734 Calculus II
- 9) Math 2033 Structure of the Number System
- 10) Math 2133 Introduction to Modern Mathematics
- 11) Math 2534 Calculus III
- 12) Math 3433 Differential Equations
- 13) Math 4573 Complex Analysis

Publications

- 1) S. Azzouz, G. Bernard, A Gear-Chain Based Transmission for the Machine Elements Design Laboratory, to appear in *Proc. of the ASME 2018 Inter. Mech. Congress & Exposition*, November 9-15, 2018, Pittsburgh, Pennsylvania.
- 2) G. Bernard, Local Existence to the Navier-Stokes Equations Through a Reversely-Diffusive Upper Solution. *Dyn. Contin. Discrete Impuls. Syst. Ser. A Math. Anal.*, 23 (2016), no.5-6, 309-340
- 3) G. Bernard, Global Existence to the Navier-Stokes Equations Through a Self-Similar-Like Upper Solution. *Com. in Contemp. Math.*, 14 (2012), no. 5, 1250031, 39 pp.

- 4) G. Bernard, Global Existence to a Reaction-Diffusion Equation Through a Self-Similar- Like Upper Solution.
Math. Meth. Appl. Sci., 33, Issue 8, (2010), 1035-1045.
First published online September 4, 2009. DOI:10.1002/mma:1235.
- 5) G. Bernard, The Inhomogeneous Incompressible Navier-Stokes Equations,
Faculty Papers (MSU journal), Series 3, Vol. XVII,
(2006-2009), 25-31.
- 6) G. Bernard, Existence Theorems for Fast Diffusion Equations,
Nonlinear Analysis, 43, (2001), 575-590.
- 7) G. Bernard, A Priori Estimates for Very Fast Diffusion Equations in \mathbb{R}^n ,
Math. Meth. Appl. Sci., 23, (2000), 965-984.
- 8) G. Bernard, Existence Theorems for Certain Elliptic and Parabolic Semilinear Equations, *J. Math. Anal. Appl.*, 210, No. 2, (1997), 755-776.
- 9) G. Bernard, An Inhomogeneous Elliptic Equation in Entire Space.
J. Differential Equations, 125, No. 1, (1996), 184-214.

Presentations

- 1) Ninth International Conference on Differential Equations and Dynamical Systems,
Texas A&M University-Commerce (Dallas Campus), May 16-19, 2015.
Title: *Local Existence to the Navier-Stokes Equations Through a Reversely Diffusive Upper Solution.*
- 2) 9th AIMS International Conference on Dynamical Systems, Differential Equations and Applications. (AIMS: American Institute of Mathematical Sciences)
Orlando, Florida July 1-5, 2012
Title: *Global Existence to the Navier-Stokes Equations Through a Diffusive Upper Solution.*
- 3) Seminar: Mathematics Texas A&M University-Kingsville, March 25, 2011
Part 1) *Derivation of the Navier-Stokes Equations.*
Part 2) *Design of Mathematical Power Point Presentations.*
- 4) Texas Partial Differential Equations Seminar, Austin, Texas April 10-11, 2010,
Title: *Global Existence to the Navier-Stokes Equations Through a Self-Similar Like Upper Solution.*
- 5) Texas Partial Differential Equations Seminar, San Marcos, Texas March 28, 2009,
Title: *A Reaction-Diffusion Equation in R^n with Spiked Initial Values.*
- 6) Faculty Forum, Midwestern State University, Wichita Falls, Texas, March 3 2009,
Title: *The Navier-Stokes Equations.*
- 7) Joint Mathematics Meeting AMS/MAA, Washington, D.C., January 5-8, 2009
Title: *A Global Existence Theorem to the Navier-Stokes Equations.*
- 8) College of Science and Mathematics Seminar, Midwestern State University,
Wichita Falls, Texas, September 26 2008,
Title: *Global Solutions in Time to Differential Equations.*
- 9) MAA Texas Meeting (88th meeting, Stephenville, Texas April 3-5, 2008,
Title: *Global Existence to a Semilinear Heat Equation in R^3 .*
- 10) $e^{i\pi}$ Math Club (MSU mathematics student club), MSU, November 16, 2005
Title: *Independent Studies for future Ph.D. students in Mathematics*
- 11) Joint Mathematics Meeting AMS/MAA, San Diego, January 6-9, 2002
Title: *Existence Theorems for Slow Diffusion Equations.*

- 12) Fifth Mississippi State Conference on D.E. & Computational Simulations, Mississippi State University, MS, May 18-19, 2001.
Title: *Global Existence Theorems to the Cauchy Problem for the Vector Valued Burgers Equation.*
- 13) Joint Mathematics Meeting AMS/MAA, New Orleans LA, January 10-13, 2001.
Title: *Global Existence Theorems for the n-Dimensional Vector Burger's Equation.*

Service

University

- 1) Signature Experience Committee, 2022-2023
Chair: Dr. Kristen Garrison, Mr. Matthew Park (co-chair)
- 2) University Research Committee, 2021-2023
Chair: Dr. Kathryn Zuckweiler.
- 3) Academic Readmission Committee, Alternate 2016-2023
Chair: Ms. Gayonne Beavers/Dr. Kristen Garrison.
- 4) Academic Advising Committee, 2016-2017
Chair: Ms. Naoma Clark, Director, Academic Success Center
- 5) Faculty Grievance Committee 2012-2016
Chair: Dr. David Carlston
- 6) Engagement Task Force Summer 2016
Chair: Mr. Matthew Park, Associate VP for Student Affairs.
- 7) VP for Business Affairs and Finance Search Committee. Summer 2012.
Chair: Dr. Terry Patton, Dean Dillard College of Business Administration
- 8) Faculty Senate (COSM representative) 2010-2012.
Chair: Dr. James Owen, Dept. of Economics Finance General Business
- 9) Student Success Committee 2009-2012.
Chair: Ms. Naoma Clark (co-chair) and Mr. Matthew Park (co-chair)
- 10) Artist Lecture Series Committee 2009-2011.
Chair: Ms. Kerri Beck (former student)
- 11) Polar Express
Chair: Mr. Dirk Welch, Career Management Center
- 12) MSU-Burns Fantasy of Lights, volunteer. October 5, 2008.
- 13) MSU-Burns Fantasy of Lights, volunteer. October 8, 2006.

College (of Science and Mathematics)

- 1) College Committee to apply for NSF-Scholarship, March 2018
Track 1: S-STEM Institutional Capacity Building.
PI: Dr. Salim Azzouz. Amount requested: \$875,166
- 2) College Committee to apply for NSF-Scholarship, March 2017
Track 1: S-STEM Institutional Capacity Building.
PI: Dr. Raj Desai. Amount requested: \$853,813
- 3) College Research Committee 2021-2022.
Chair: Dr. Eduardo Colmenares-Diaz
- 4) College Research Committee 2009-2012.
Chair: Dr. William Cook.
- 5) College Research Committee 2008-2009.
Chair: Dr. Brent Elliott

Department (of Mathematics)

- 1) New College Algebra Final Exam Committee, 2022
Chair: Dr. Marcos Lopez
- 2) Curriculum Committee (Mathematics Dept.), 2021-2022
Chair: Dr. Sarah Cobb
- 3) Program Assessment Committee (SACS), 2016-2023
Chair: Dr. Guy Bernard (myself)
- 4) Mathematics Scholarship Initiative, 2017-2018
PI: Dr. Guy Bernard (myself) Amount: \$2715
- 5) Mathematics Hiring Committee, 2014-2015
Chair: Dr. Patrick Mitchell
- 6) In-House College Algebra Text Committee, 2013-2014
Chair: Dr. Patrick Mitchell
- 7) Student Awards Committee, 2005-present
Chair: Dr. David Tucker/Chair of the Mathematics Department.
- 8) Differential Equations Textbook Committee, 2011-12
Chair: Dr. Guy Bernard (myself)
- 9) Department Accreditation Committee, 2007-09
Chair: Dr. Patrick Mitchell
- 10) Calculus Textbook Committee, 2010-11
Chair: Dr. Guy Bernard (myself)
- 11) Assessment Committees (various), 2009-16.
Chair: Dr. Knox, Dr. Tucker, Dr. Slavens, Dr. Mitchell.
- 12) Core Curriculum Committee (department, 2012-2013
Chair: Dr. Dawn Slavens
- 13) Mathematics Curriculum Committee, 2006-07 and 2014-15
Chair: Dr. Dawn Slavens
- 14) College Algebra Textbook Committee, 2006-2007
Chair: Ms. Marsha May
- 15) College Algebra Textbook Committee, 2017-2018
Chair: Myself

Profession

- 1) North Texas Area Student Conference (NTASC) 21th Annual
moderator of session, April 21, 2018
- 2) TORUS (Texas Oklahoma Research Undergraduate Symposium), helped
in preparing and hosting the conference, February 10, 2018, at MSU
Main Organizer: Dr. Patrick Mitchell
- 3) Mathematical Congress of the Americas
Volunteer at conference, July 24-28, 2017, Montreal, Canada
- 4) North Texas Area Student Conference (NTASC) 21th Annual
moderator of session, April 29, 2017
- 5) Cisco College Core Curriculum Conference I gave a presentation,
and acted as moderator of sessions, May 18-19, 2017 Abilene, TX
- 6) North Texas Community College Consortium (NTCCC)
represented MSU, Dallas area TX

- 7) Texoma Regional Math/Science Conference, Region 9 (W.F)
presentation/workshop/MSU information desk, June 2016, 2017, and 2018.
- 8) Celebration of Scholarship (at MSU),
judging undergraduate research, Nov. 2017, April 2016, 2017, and 2018.
- 9) AWM (Association of Woman in Mathematics)
Reviewer of high school essays. February 2016
- 10) Nonlinear Analysis Series A: Theory, Methods, and Applications (journal).
Reviewer for a paper, May 2014
Title: On the Existence of Positive Solutions for and Inhomogeneous
- 11) TORUS (Texas Oklahoma Research Undergraduate Symposium), helped
in preparing and hosting the conference, February 23, 2013, at MSU
Organizers: Dr. Michelle Knox and Dr. Terry McDonald.
- 12) Texas Partial Differential Equations Seminar, moderator of Session,
March 26-27, 2011, University of Texas at Pan American, Edinburg Texas.
- 13) William Lowell Putnam Mathematical Competition , proctor.
December 2006, 2009, 2010, 2012, 2013.
- 14) Texas Partial Differential Equations Seminar, moderator of Session,
April 10-11, 2010, University of Texas at Austin.
- 15) TORUS (Texas Oklahoma Research Undergraduate Symposium), helped
to organize and host the conference, February 27, 2010, at MSU
Organizer: Dr. Jeffrey Hood
- 16) 89th Meeting of the Texas Section of the MAA , moderator of Session,
April 16-19, 2009, University of North Texas, Denton, Texas
- 17) Texas Partial Differential Equations Seminar, moderator of Session,
March 28, 2009, Texas State University , San Marcos, Texas.
- 18) 86th Meeting of the Texas Section of the MAA , assistant in the event.
April 6-8, 2006, at MSU.
- 19) Texas Journal of Science, reviewer (for four papers)
July 29, 2008. April 23, 2008. December 14, 2006, August 29, 2006.

Students

- UGROW (Undergraduate Research Opportunities and Summer Workshops)
- 1) Summer 2018. Student: George Nhamo and Don Wijesinghe
 - 2) Summer 2016. Student: Rojitha Goonesekere
 - 3) Summer 2015. Student: Indeesha Wickramarachchi
 - 4) Summer 2014. Student: Lance Henry
 - 5) Summer 2013. Student: Jessica Amber LeCroy, and Cheddi Charles
 - 6) Summer 2012. Student: Jessica Amber LeCroy
 - 7) Summer 2011. Student: Gary Phillip
 - 8) Summer 2010. Student: Christopher Caruvana

Community

- 1) Wichita Falls Area Food Bank (WFAFB)
Member of the Board of Directors (since March 2017-July 2021).
Volunteer work and donor.
Organizer: Mr. Devah Scholl (chair of the Board)

- 2) Polar Express (MSU)
Organizer: Mr. Dirk Welch, Career Management Center (MSU)
- 3) TAME Family STEM Day Trailblazer
(Texas Alliance for Minorities in Engineering)
Contact (at MSU): Dr. Denise Simmons, Curriculum and Learning
- 4) Environmental Student Society (ESO) (at MSU)
Organizer: Ms. Alex Nelson (student)
- 5) Great Day of Service, Saturday April 14, 2012 and September 28, 2013.
Organizer: Ms. Candice Fulton
- 6) Habitat for Humanity of Wichita Falls, March 15, 2010
- 7) Relay for Life-American Cancer Society, fundraiser, June 2008, 2009.
Organizer: Dr. Michelle Knox
- 8) MSU Great Day of Service, April 4, 2009.
Organizer: Ms. Candice Fulton
- 9) Red River Regional Science and Engineering Fair, judge,
March 2007, February 2008, 2009.
- 10) MSU Great Day of Service, April 19, 2008.
Team Leader: Ms. Rebekka Jones (dept. affiliation: Math Club)
- 11) State Conference of the Science Teachers Association of Texas, volunteer.
November 11, 2006.

Grants

- 1) Intramural Research and Creative Endeavors Award (MSU).
Amount \$5,569.71 awarded May 9, 2017
PI: Dr. Salim Azzouz CoI: Dr. Guy Bernard (myself)
Description: This grant was mainly to purchase a high performance computer for Dr. Azzouz and to hire an undergraduate student to perform calculations and documentation in regards to a collaborative project between Dr. Azzouz and myself.
Title: New Mathematical Model for Supersonic Panel Flutter.
- 2) College of Science and Mathematics Research Grant (MSU).
Description: Funding to attend NSF-CBMS conference (July 21-25, 2014) \$485 held at Oklahoma State University, Stillwater, OK
Title: Problems in Partial Differential Equations Related to Fluids.
- 3) MAA Regional Undergraduate Mathematics Conferences June 2009
Description: Funding of TORUS undergraduate research conference \$1,800
Principal Investigator: Dr. Jeff Hood.
- 4) College of Science and Mathematics Research Grant (MSU).
Description: Funding to attend Texas PDE Seminar (March 28, 2009) \$667
- 5) Grant from the Office of the Dean of Science and Mathematics (MSU)
Amount: \$500 (requested \$800) Academic year: 2006-07.
PI: Dr. Randal Hallford, Department of Chemistry
CoI: Dr. Jeff Hood, and Dr. Guy Bernard (Department of Mathematics)
Description: This grant was to purchase advanced mathematics for scientists textbooks which was used by the team to develop a new advanced mathematics course titled: "Mathematics for Chemistry Students".

- 6) Summer Research Stipend: University of Central Arkansas, Summer 01.
Title: *The Navier-Stokes Equations*
- 7) Undergraduate Research Grant: University of Central Arkansas
Directing students in undergraduate research, May 01-May 02.
Project: *Numerical Solutions of Helmholtz Equations.*
- 8) Scholarship: Pratt and Whitney of Canada Ltd.
Sabbatical to complete Master's thesis at Ecole Polytechnique, Jan 81-Dec 81
Title: *Numerical Method to solve the Compressible Navier-Stokes Equations.*