WILLIAM J. TURNER

Department of Mathematics & Computer Science (765) 361-6354 (phone)
Wabash College (765) 361-6340 (fax)
P.O. Box 352 turnerw@wabash.edu
Crawfordsville, Indiana 47933 http://persweb.wabash.edu/facstaff/turnerw

EDUCATION

Ph.D., North Carolina State University, Computational Mathematics, 2002
    Advisor: Erich Kaltofen
    Dissertation: *Black Box Linear Algebra with the LinBox Library*

M.S., Iowa State University, Applied Mathematics, 1996
    Advisor: Ralph Smith
    Project: *Time Discretization of Structural Problems*

B.S., Iowa State University, Mathematics and Physics, 1994
    Awarded with honors and distinction
    Honors Project: *Detection of Heavy Ion Recoils Following Pair Production*

PROFESSIONAL POSITIONS

Permanent Positions

Chair, Department of Mathematics & Computer Science, Wabash College, 2012 –
Associate Professor of Mathematics & Computer Science, Wabash College, 2008 –
Assistant Professor of Mathematics & Computer Science, Wabash College, 2004 – 2008
Byron K. Trippet Assistant Professor of Mathematics & Computer Science, Wabash College, 2002 – 2004
Teaching & Research Assistant, Department of Mathematics, North Carolina State University, 1996 – 2002
Teaching Assistant, Department of Mathematics Iowa State University, 1994 – 1996
Undergraduate Research Assistant, Department of Physics & Astronomy Iowa State University, 1991 – 1994

Temporary Positions

Programmer on the Maple e-Grading Project, North Carolina State University, Summer 2001
Graduate Student Intern, Boeing, Seattle, Washington, Summer 1998
Graduate Student Summer Intern, Wright-Patterson AFB, Ohio, Summer 1995

HONORS AND AWARDS

Eta Sigma Phi National Classics Honorary (2010)
Tenure, Wabash College (December 2007)
Exxon-Mobil Project NExT Fellow (2003 – 2004)
Project NExT-IN Fellow (2002 – 2003)
Lowell S. Winton and Nicholas J. Rose Research Scholarship (2002)
Outstanding Teaching Assistant (2000)
Aggie Ho Outstanding Teaching Award (1996)

Bachelor of Science with honors and distinction (1994)
Mortar Board National Honor Society (1993)
Phi Kappa Phi National Honor Society (1992)
Golden Key National Honor Society (1992)
Pi Mu Epsilon National Mathematics Honorary (1992)
Iowa State University Academic Recognition Scholarship (1992)
National Merit Scholarship (1992)
David Collins Freshman Physics Scholarship (1991)

PUBLICATIONS

[10] Mike Axtell and William Turner. An Investigation Into the Effectiveness of Pre-Class Reading Questions. In Jacqueline M. Dewar and Curtis D. Bennett, editors, *Doing the Scholarship of Teaching and Learning in Mathematics*. The Mathematical Association of America.

[9] Mike Axtell, J.D. Phillips, and William Turner (2007). Wabash Summer Institute in Algebra (WSIA). In Joseph A. Gallian, editor, *Proceedings of the Conference on Promoting Undergraduate Research in Mathematics*, pages 183–188. American Mathematical Society, Providence, Rhode Island. ISBN 978-0-8218-4321-5.
URL http://www.ams.org/employment/REUproceedings.html

[8] M. Axtell and W. Turner (2007). Examining the Effectiveness of Reading Questions in Introductory College Mathematics Courses. In Joelle Fanghanel and Digby Warren, editors, *International Conference on the Scholarship of Teaching and Learning (2005 and 2006)*, pages 205–210. CEAP, City University, London. ISBN 978-0-9543742-3-5.

[7] William J. Turner (2006). A Block Wiedemann Rank Algorithm. In Jean-Guillaume Dumas, editor, *ISSAC 2006: Proceedings of the 2006 International Symposium on Symbolic and Algebraic Computation*, pages 332–339. ACM Press, New York, New York.
URL http://doi.acm.org/10.1145/1145768.1145822

[6] William J. Turner (2005). Preconditioners for Singular Black Box Matrices. In Manuel Kauers, editor, *ISSAC 2005: Proceedings of the 2005 International Symposium on Symbolic and Algebraic Computation*, pages 332–339. ACM Press, New York, New York.
URL http://doi.acm.org/10.1145/1073884.1073930

[5] J.-G. Dumas, T. Gautier, M. Giesbrecht, P. Giorgi, B. Hovinen, E. Kaltofen, B. D. Saunders, W. J. Turner, and G. Villard (2002). LinBox: A Generic Library for Exact Linear Algebra. In Arjeh M. Cohen, Xiao-Shan Gao, and Nobuki Takayama, editors, *Proceedings of the International Congress of Mathematical Software (ICMS), Beijing*. World Scientific, Singapore.
URL http://persweb.wabash.edu/facstaff/turnerw/Publications/linbox-2002.pdf

[4] William J. Turner (2002). *Black Box Linear Algebra with the LinBox Library*. Ph.D. thesis, North Carolina State University, Raleigh, North Carolina.
URL http://www.lib.ncsu.edu/theses/available/etd-06122002-095342/unrestricted/etd.pdf

[3] Li Chen, Wayne Eberly, Erich Kaltofen, B. David Saunders, William J. Turner, and Gilles Villard (2002). Efficient Matrix Preconditioners for Black Box Linear Algebra. *Linear Algoebra and its Applications*, 343-344:119–146. Special issue on *Infinite Systems of Linear Equations Finitely Specified*.
URL http://persweb.wabash.edu/facstaff/turnerw/Publications/cekstv-laa-2002.pdf

[2] Shangzou Gao, M. A. Jeffris, Min Liang, D. F. Pilkey, W. J. Turner, Yun Wang, and B. G. Fitzpatrick (1997). Wavelet Analysis of Vibration in Nondestructive Evaluation. In F. Reitich, J. S. Scroggs, and H. T. Tran, editors, *1996 Industrial Mathematics Modeling Workshop for Graduate Students*, pages 78–85. Tech. Rep. CRSC-TR97-8, Center for Research in Scientific Computation.
URL http://www.ncsu.edu/crsc/reports/ftp/crsc-tr97-8.ps.gz

[1] William J Turner (1996). Time Discretization of Structural Problems. Master's project, Iowa State University, Ames, Iowa.
URL http://persweb.wabash.edu/facstaff/turnerw/Publications/ms-1996.pdf

PRESENTATIONS

[19] William Turner (4 February 2014). Telling Secrets: Secret Writing Through the Ages. Department Colloquium, Department of Mathematics & Computer Science, Wabash College.
URL http://persweb.wabash.edu/facstaff/turnerw/Presentations/colloquium-2014-handout.pdf

[18] William J. Turner (21 September 2010). Exact Arithmetic on a Computer : Symbolic Computation and Computer Algerba. Department Colloquium, Department of Mathematics & Computer Science, Wabash College.
URL http://persweb.wabash.edu/facstaff/turnerw/Presentations/colloquium-2010-handout.pdf

[17] William Turner (3 May 2010). Exact Arithmetic on a Computer : Symbolic Computation and Computer Algerba. Invited Talk, Department Colloquium, Valparaiso University.
URL http://persweb.wabash.edu/facstaff/turnerw/Presentations/valpo-2010-handout.pdf

[16] William Turner (21 August 2009). Computational Science at Wabash College. Contributed Talk, 2009 Ides of August, Wabash College.
URL http://persweb.wabash.edu/facstaff/turnerw/Presentations/ides-2009-handout.pdf

[15] William J. Turner (6 February 2007). Linear Algebra on a Computer: An Introduction to Black Box Methods. Department Colloquium, Department of Mathematics & Computer Science, Wabash College.
URL http://persweb.wabash.edu/facstaff/turnerw/Presentations/colloquium-2007-handout.pdf

[14] William Turner (18 August 2006). WSIA : Wabash Summer Institute in Algebra. Contributed Talk, 2006 Ides of August, Wabash College.
URL http://persweb.wabash.edu/facstaff/turnerw/Presentations/ides-2006-handout.pdf

[13] William J. Turner (11 July 2006). A Block Wiedemann Rank Algorithm. Contributed Talk, 2006 International Symposium on Symbolic and Algebraic Computation.
URL http://persweb.wabash.edu/facstaff/turnerw/Presentations/issac-2006.pdf

[12] Mike Axtell and William Turner (18 May 2006). Examining the Effectiveness of Reading Questions in Introductory University Mathematics Courses. Contributed Talk, London SoTL 6th Annual International Conference.
URL http://persweb.wabash.edu/facstaff/turnerw/Presentations/sotl-2006.pdf

[11] William J. Turner (27 July 2005). Preconditioners for Singular Black Box Matrices. Contributed Talk, 2005 International Symposium on Symbolic and Algebraic Computation.
URL http://persweb.wabash.edu/facstaff/turnerw/Presentations/issac-2005.pdf

[10] William J. Turner (19 October 2004). Can You Hear Me Know? An Introduction to Coding Theory. Department Colloquium, Department of Mathematics & Computer Science, Wabash College.
URL http://persweb.wabash.edu/facstaff/turnerw/Presentations/colloquium-2004-handout.pdf

[9] William J. Turner (12 March 2004). Black Box Linear Algebra: An Introduction to Wiedemann's Approach. Invited Talk, Department Seminar, Center For Computing Sciences, Bowie, Maryland.
URL http://persweb.wabash.edu/facstaff/turnerw/Presentations/ccs-2004.pdf

[8] William J. Turner (12 November 2003). Black Box Linear Algebra: An Introduction to Wiedemann's
    Approach. Invited Talk, Department Seminar, Department of Mathematics, Rose-Hulman Institute of
    Technolog.
    URL http://persweb.wabash.edu/facstaff/turnerw/Presentations/rhit-2003.pdf

[7] Jean-Guillaume-Dumas, William J. Turner, and Zhendong Wan (18 May 2002). Exact Solution to Large
    Sparse Integer Linear System. Poster Presentation, East Coast Computer Algebra Day (ECCAD),
    LaGuardia Community College of The City University of New York.

[6] William J. Turner (6 March 2002). Black Box Linear Algebra. Graduate Algebra Seminar, Department
    of Mathematics, North Carolina State University.
    URL http://persweb.wabash.edu/facstaff/turnerw/Presentations/gras-2002.pdf

[5] William J. Turner (21 Septebmer 2001). Black Box Linear Algebra with the LinBox Library. Graduate
    Algebra Seminar, Department of Mathematics, North Carolina State University.
    URL http://persweb.wabash.edu/facstaff/turnerw/Presentations/gras-2001.pdf

[4] William J. Turner (23 – 25 July 2001). Efficient Matrix Preconditioners for Black Box Linear Algebra.
    Poster Presentation, International Symposium on Symbolic and Algebraic Computation (ISSAC), Lon-
    don, Ontario, Canada.
    URL http://persweb.wabash.edu/facstaff/turnerw/Presentations/issac-2001.pdf

[3] William J. Turner (5 May 2001). A Randomized Baby Steps/Giant Steps Implementation of Wiede-
    mann's Determinant Algorith. Poster Presentation, East Coast Computer Algebra Day (ECCAD),
    Florida State University.
    URL http://persweb.wabash.edu/facstaff/turnerw/Presentations/eccad-2001.pdf

[2] William J. Turner (23 June 2000). The Generic Field and Black Box Matrix Models in the LinBox
    Library. Presentation at LinBox Meeting, Institut d'Informatique et de Mathématiques Appliqueés de
    Grenoble (IMAG), France.
    URL http://persweb.wabash.edu/facstaff/turnerw/Presentations/grenoble-2000.pdf

[1] William J. Turner (13 May 2000). The Generic Field and Black Box Matrix Models in the LinBox
    Library. Poster Presentation, East Coast Computer Algebra Day (ECCAD), University of Western
    Ontario.
    URL http://persweb.wabash.edu/facstaff/turnerw/Presentations/eccad-2000.pdf

GRANTS

NSF DMS-0453387 : REU Site: Wabash Summer Institute of Algebra

SERVICE

Service to Profession

Professional Societies

2011 – 12 Project NExT Consultant
2009 – 10 Project NExT Consultant
2008 – 9 Project NExT Consultant
Indiana Section of the MAA Newsletter Editor (2008 –)
ACM SIGCSE Information Co-Director (2007 –)
ACM SIGSAM Advisory Board (2005 – 2008)

Project NExT-Indiana Co-Organizer (2004 – 2005)
ACM SIGSAM Information Director (2003 – 2014)

External Reviewer/Referee

2015 SIGCSE Symposium
PRIMUS: Problems, Resources, and Issues in Mathematics Undergraduate Studies
ITiCSE 2014
2014 SIGCSE Symposium
PRIMUS: Problems, Resources, and Issues in Mathematics Undergraduate Studies
ITiCSE 2013
2013 SIGCSE Symposium
2012 Consortium for Computing Sciences in Colleges Midwest (CCSC:MW) Conference
PRIMUS: Problems, Resources, and Issues in Mathematics Undergraduate Studies
ITiCSE 2012
2012 SIGCSE Symposium
2011 Consortium for Computing Sciences in Colleges Midwest (CCSC:MW) Conference
ITiCSE 2011
2011 SIGCSE Symposium
2010 Consortium for Computing Sciences in Colleges East (CCSC:E) Conference
ITiCSE 2010
2010 International Symposium on Symbolic and Algebraic Computation
2010 SIGCSE Symposium
2009 Consortium for Computing Sciences in Colleges East (CCSC:E) Conference
2009 Consortium for Computing Sciences in Colleges Northeast (CCSC:NE) Conference
Loci — online journal of MathDL and MAA
Journal of Symbolic Computation
ITiCSE 2009
2009 SIGCSE Symposium
Journal of Symbolic Computation
2008 SIGCSE Symposium
2007 International Symposium on Symbolic and Algebraic Computation
Journal of Online Mathematics and its Applications
ITiCSE 2007
Journal of Symbolic Computation
Transactions on Mathematical Software
2007 SIGCSE Symposium
ITiCSE 2006
American Journal of Undergraduate Research
2006 SIGCSE Symposium
ITiCSE 2005
2005 SIGCSE Symposium
2004 Midstates Conference for Undergraduate Research in Computer Science and Mathematics
2004 Consortium for Computing Sciences in Colleges: Eastern Conference
2004 International Symposium on Symbolic and Algebraic Computation
2004 SIGCSE Symposium
John Wiley & Sons, Inc., Publishers
2003 Consortium for Computing Sciences in Colleges: Midwest Conference
College Mathematics Journal "Classroom Capsule"
American Journal of Undergraduate Research
2002 Consortium for Computing Sciences in Colleges: Midwest Conference
Journal of Symbolic Computation
2001 International Symposium on Symbolic and Algebraic Computation
2000 International Symposium on Symbolic and Algebraic Computation

Conference Organizing Committee

Publicity Chair, 2012 International Symposium on Symbolic and Algebraic Computation
Poster Committee Member, 2005 International Symposium on Symbolic and Algebraic Computation
Web Chair, 2003 International Symposium on Symbolic and Algebraic Computation
Web Co-chair, 2001 International Symposium on Symbolic and Algebraic Computation
Automated poster submission system, 1999 East Coast Computer Algebra Day

Other

Session Chair, Spring 2009 meeting of the Indiana Section of the Mathematical Association of America (INMAA)
Session Chair, 2006 International Symposium on Symbolic and Algebraic Computation
National Study of Liberal Arts Education, Institutional Context Study
    Center of Inquiry in the Liberal Arts, Wabash College
Judge, 2004 Joint Mathematics Meetings Undergraduate Student Poster Session

Service to Institution

Faculty Advisor, Delta Omicron Chapter, Alpha Phi Omega (2015 –) :
    Advisory Board Chair (2015 –)
Institutional Review Board (2014 –)
Ad hoc COACHE Study Response Team (2013 –)
Committee on Committees (2013 –)
Scientific Integrity Committee (2011 – 2014)
Integrated Mareketing Committee (2011 – 2013)
Academic Honesty Appeals Panel (2011 – 2014)
McLain-McTurnan-Arnold Research Scholar Committee (2009 – 2012)
    Chair (2010 – 2012)
Rogge Fund Committee (2009 – 2012)
Outside Faculty Member, Theodore Bedrick Fellow Search (2011)
Cultures & Traditions Co-Chair (2010 – 2011)
Academic Policy Committee (2005 – 2006, 2009 – 2011)
    APC Agenda Committee (2010 – 2011)
    Curriculum Appeals Committee (2005 – 2006, 2009 – 2010)
Cultures & Traditions Steering Committee (2009 – 2011)
Graduate Fellowships Committee (2007 – 2008)
Outside Faculty Member, Visiting Philosophy Search (2007)
Teaching and Learning Committee (2006 – 2008) :
    Chair (2007 – 2008)
Outside Faculty Member, Visiting Religion Search (2006)
Norman E. Treves Science Award Committee (2005 – 2008)
Faculty Admissions Committee (2004 – 2006)
Technology Advisory Committee (2004 – 2007) :
    Chair (2005 – 2007)
Cultures & Traditions, European Revolution Module Subcommittee (2004)
Cultures & Traditions, Greek Module Revision Subcommittee (2004)
Outside Faculty Member, Tenure-Track German Search (2004)
Division I Speakers Committee (2003 – 2004)
Freshman Advisor (2003, 2005)
International Merit Scholarship Committee (2003 – 2004)
Faculty Advisor, Delta Omicron Chapter, Alpha Phi Omega (2002 – 2007) :
    Advisory Board Chair (2004, 2007)

Science and Math Facilities Committee (2002 – 2004)

Service to Department

Department Chair (2012 –)
Department Colloquium (2011 – 2012)
Course Scheduling (2009 –)
MAA Liaison (2008 –)
Written Comprehensive Examinations (2006 – 2008, 2009–2010)
J. Crawford Polley Prize Coordinator (2006 – 2008)
George E. Carscallen Prize Coordinator (2005 – 2008)
Technical Report Series (2004 –)
Assessment (2003 – 2008)
Calculus Course Coordinator (2003 – 2005)
Email List Administrator (2003 –)
Web Pages (2003 –)
Mathematics Competitions (2002 – 2004)

PROFESSIONAL SOCIETIES

American Mathematical Society (AMS)
Association for Computing Machinery (ACM)
ACM Special Interest Group on Computer Science Education (ACM SIGCSE)
ACM Special Interest Group on Symbolic and Algebraic Manipulation (ACM SIGSAM)
Mathematical Association of America (MAA)

UNDERGRADUATE RESEARCH STUDENTS

Devin Chalmers, Wabash College '07 (Summer 2004)
Damie Green, University of Texas of the Permian Basin '08 (WSIA 2007)
Albert Li, Wabash College '16 (Summer 2014)
Feng Mai, Wabash College '08 (WSIA 2006)
Alan Patton, Wabash College '04 (Summer 2003)
Matthew A. Reyna, Case Western Reserve University '07 (WSIA 2006)
Zachary J. Roth, Hastings College '07 (WSIA 2006)
Amanda J Watkins, University of Evansville '08 (WSIA 2006)
Austin Somers, Wabash College '07 (Summer 2004)

COURSES TAUGHT

Wabash College

C&T 201: *Cultures & Traditions I* — Fall 2003, Fall 2006, Fall 2010
C&T 202: *Cultures & Traditions II* — Spring 2011

CSC 101: *Introduction to Computer Science* — Fall 2005, Fall 2006, Fall 2007, Fall 2009, Fall 2010, Fall 2013, Fall 2014
CSC 111: *Introduction to Computer Science* — Fall 2002 (co-taught), Spring 2012
CSC 112: *Advanced Programming* — Fall 2003, Fall 2004, Fall 2011
CSC 121: *Introduction to Additional Programming Languages*

      C++ — Fall 2013
      Haskell — Fall 2013
      Python — Fall 2014
      Scheme — Fall 2014

CSC 171: *Special Topics in Computer Science*

      Programming in Python — Fall 2012
      Programming in Scheme — Fall 2012

CSC 211: *Introduction to Data Structures* — Spring 2003, Spring 2004, Spring 2010, Spring 2011, Spring 2012, Spring 2013, Spring 2014, Spring 2015

CSC 271: *Special Topics in Computer Science*

      Mobile Device Programming — Spring 2013, Spring 2015
      Database Design — Fall 2013

CSC 321: *Programming Languages* — Spring 2011, Spring 2012 (Independent Study)

CSC 331: *Analysis of Algorithms* — Spring 2012 (Independent Study)

CSC 338: *Topics in Computational Mathematics*

      Computer Algebra — Fall 2009, Fall 2011

CSC 341: *Theory of Computing* — Spring 2007

FRT: *Freshman Tutorial* — Fall 2005 *(Man and Machine)*

MAT 106: *Topics in Contemporary Mathematics*

      Pure Mathematics — Spring 2005, Spring 2006, Spring 2007, Spring 2008, Spring 2010, Spring 2014
      Number Theory — Fall 2011

MAT 108: *Introduction to Discrete Structures* — Fall 2009, Fall 2012, Fall 2014

MAT 111: *Calculus I* — Fall 2002, Spring 2003, Fall 2003, Fall 2004, Spring 2008, Fall 2010, Fall 2012

MAT 112: *Calculus II* — Spring 2004, Spring 2010

MAT 219: *Combinatorics* — Spring 2006, Spring 2012, Spring 2014

MAT 222: *Theory of Numbers* — Fall 2005, Fall 2006, Fall 2007, Spring 2013, Spring 2015

MAT 223: *Elementary Linear Algebra* — Fall 2002, Spring 2006, Fall 2007

MAT 226: *Operations Research* — Spring 2003, Spring 2005, Spring 2007

MAT 314: *Modeling with Differential Equations* — Fall 2004

MAT 319: *Combinatorics* — Spring 2004

MAT 331: *Abstract Algebra I* — Spring 2005, Spring 2008

MAT 338: *Topics in Computational Mathematics*

      Computer Algebra — Fall 2009, Fall 2011

North Carolina State University

MA 111: *Precalculus Algebra and Trigonometry* — Fall 1996 (Teaching assistant)

MA 141: *Analytic Geometry and Calculus I* — Fall 1997, Fall 1998, Spring 1999, and Fall 1999

MA 305: *Elementary Linear Algebra* — Spring 2000 (Internet course; teaching assistant)

Iowa State University

Math 141/2: *Trigonometry and Analytic Geometry* — Fall 1994

Math 160: *Calculus for Economics and Biology Majors* — Spring 1995, Fall 1995, and Spring 1996