

Curriculum Vitae

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Employment

- **Wesleyan University** Chair, Department of Mathematics and Computer Science (2010-current)
- **Wesleyan University** Professor (2007-current).
- **Wesleyan University** Associate Professor (2002-2007).
- **Wesleyan University** Assistant Professor (1999-2002).
- **Wesleyan University** Visiting Assistant Professor (1997-1999).
- **Massachusetts Institute of Technology** NSF Postdoctoral Research Fellow (1994-1997).
- **University of Kentucky** Assistant Professor (1992-1994).
- **Yale University** Gibbs Instructor (1990-1992).
- **University of New Haven** Assistant Professor (1989-90).

Education

- *Massachusetts Institute of Technology* Ph.D. in Mathematics, May 1989. Advisor: David Anick. Thesis title: A New Definition of Cocategory. Elected member Sigma Xi.
- *Ohio State University* B.S. (magnā cum laude in Mathematics) June 1984. Elected member Phi Beta Kappa.

Books and monographs

1. *Morava K-theories and localization*, with Neil Strickland, Mem. Amer. Math. Soc. **139**, no. 666 (1999) (104 pages).

2. *Model categories*, Mathematical Surveys and Monographs **63**, American Mathematical Society, Providence, RI, 1999, (x + 209 pages).
3. *Axiomatic stable homotopy theory*, with John H. Palmieri and Neil P. Strickland, Mem. Amer. Math. Soc. **128**, no. 610 (1997) (114 pages).

Published refereed papers

4. *Quillen model categories*, Journal of K-theory **11** (2013), 469–478.
5. *Homological dimensions of ring spectra*, with Keir Lockridge, Homology, Homotopy and Applications **15** (2013), 53–71.
6. *The ghost and weak dimensions of rings and ring spectra*, with Keir Lockridge, Israel J. Math. **182** (2011), 31–46.
7. *Additive closed symmetric monoidal structures on R -modules*, J. Pure Appl. Algebra **215** (2011), 789805.
8. *Gorenstein model structures and generalized derived categories*, with James Gillespie, Proc. Edinb. Math. Soc. (2) **53** (2010), 675696.
9. *Intersection homological algebra, New topological contexts for Galois theory and algebraic geometry*, 133–150, Geom. Topol. Monogr., **16**, Geom. Topol. Publ., Coventry, (2009).
10. *Bounds on the distinguishing chromatic number*, with Karen L. Collins and Ann N. Trenk, Electron. J. Combin. **16** (2009), no. 1, Research Paper 88, 14 pp.
11. *Semisimple ring spectra*, with Keir Lockridge, New York J. Math. **15** (2009), 219–243.
12. *The ghost dimension of a ring*, with Keir Lockridge, Proc. Amer. Math. Soc. **137** (2009), no. 6, 1907–1913.
13. *The homotopy of $MString$ and $MU\langle 6 \rangle$ at large primes*, Algebr. Geom. Topol. **8** (2008), no. 4, 2401–2414.
14. *Morava E -theory of filtered colimits*, Trans. Amer. Math. Soc. **360** (2008), 369–382.
15. *Cotorsion pairs and model categories*, Interactions between homotopy theory and algebra, 277–296, Contemp. Math. **436**, Amer. Math. Soc., Providence, RI, 2007.
16. *Injective comodules and Landweber exact homology theories*, Fund. Math. **196** (2007), 237–251.
17. *On Freyd’s generating hypothesis*, Q. J. Math. **58** (2007), 31–45.

18. *The generating hypothesis in the derived category of a ring*, with Keir Lockridge and Gena Puninski, *Math. Z.* **256** (2007), 789–800.
19. *The generalized homology of products*, *Glasg. Math. J.* **49** (2007), 1–10.
20. *Chromatic phenomena in the algebra of BP_*BP -comodules*, *Elliptic cohomology: geometry, applications, and higher chromatic analogues*, 170–203, *London Math. Soc. Lecture Notes* **342**, Cambridge University Press, Cambridge, 2007.
21. *Comodules and Landweber exact homology theories*, with Neil Strickland, *Adv. Math.* **192** (2005), 427–456.
22. *Local cohomology of BP_*BP -comodules*, with Neil Strickland, *Proc. London Math. Soc.* (3) **90** (2005) 521–544.
23. *Operations and co-operations in Morava E -theory*, *Homology Homotopy Appl.* **6** (2004), 201–236.
24. *Homotopy theory of comodules over a Hopf algebroid*, *Homotopy theory: relations with algebraic geometry, group cohomology and algebraic K -theory* (Evanston, IL 2002), 261–304, *Contemp. Math.* **346**, Amer. Math. Soc., Providence, RI, 2004.
25. *Cotorsion pairs, model category structures, and representation theory*, *Math. Z.* **241** (2002), 553–592.
26. *Morita theory for Hopf algebroids and presheaves of groupoids*, *Amer. J. Math.* **124** (2002), 1289–1318.
27. *Quillen model structures for relative homological algebra*, with J. Daniel Christensen, *Math. Proc. Camb. Phil. Soc.* **133** (2002), 261–293.
28. *Spectra and symmetric spectra in general model categories*, *J. Pure Appl. Alg.* **165** (2001), 63–127.
29. *Classifying subcategories of modules*, *Trans. Amer. Math. Soc.*, **353** (2001), 3181–3191. There is an erratum to this paper, which appears in *Trans. Amer. Math. Soc.* **360** (2008), 2890.
30. *Stably thick subcategories of modules over Hopf algebras*, with John Palmieri, *Math. Proc. Camb. Phil. Soc.* **130** (2001), 441–474.
31. *Model category structures on chain complexes of sheaves*, *Trans. Amer. Math. Soc.* **353** (2001), 2441–2457.
32. *Galois theory of thick subcategories in modular representation theory*, with John Palmieri, *J. Algebra* **230** (2000), 713–729.
33. *Phantom maps and chromatic phantom maps*, with J. Daniel Christensen, *Amer. J. Math.* **122** (2000), 275–293.

34. *Symmetric spectra*, with Brooke Shipley and Jeff Smith, J. Amer. Math. Soc. **13** (2000), no. 1, 149–208.
35. *Invertible spectra in the $E(n)$ -local stable homotopy category*, with Hal Sadofsky, J. London Math. Soc.(2) **60** (1999), 284–302.
36. *The structure of the Bousfield lattice*, with John Palmieri, Homotopy invariant algebraic structures (Baltimore, MD 1998), 175–196, Contemp. Math. **239**, Amer. Math. Soc., Providence, RI, 1999.
37. *v_n -elements in ring spectra and applications to bordism theory*, Duke Math. J. **88** (1997), 327–356.
38. *Tate cohomology lowers chromatic Bousfield classes*, with Hal Sadofsky, Proc. Amer. Math. Soc., **124** (1996), 3579–3585.
39. *Bousfield localization functors and Hopkins’ chromatic splitting conjecture*, The Cech centennial (Boston, MA 1993), 225–250, Contemp. Math. **181**, Amer. Math. Soc., Providence, RI, 1995.
40. *Spin bordism and elliptic homology*, Math. Z. **219** (1995), 163–170.
41. *Cohomological Bousfield classes*, J. Pure Appl. Algebra, **103** (1995), 45–59.
42. *The 7-connected cobordism ring at $p = 3$* , with Douglas C. Ravenel, Trans. Amer. Math. Soc., **347** (1995), 3473–3502.
43. *Lusternik-Schnirelmann cocategory*, Illinois J. Math. **37** (1993), 224–239.
44. *A proof of the existence of level 1 elliptic cohomology*, Proc. Amer. Math. Soc., **118** (1993), 1331–1334.
45. *Spin cobordism determines real K -theory*, with Michael J. Hopkins, Math. Z. **210** (1992), 181–196.
46. *A-cordial graphs*, Discrete Math. **93** (1991), 183–194.
47. *A bijective proof for the parity of Stirling numbers*, with Karen L. Collins, Ars Combin. **31** (1991), 31–32.
48. *Most graphs are edge-cordial*, with Karen L. Collins, Ars Combin. **30**(1990), 289–295.

Papers submitted for publication in refereed journals

49. *The stable module category of a general ring*, with Daniel Bravo and James Gillespie, (37 pages)
50. *Brown representability and the Eilenberg-Watts theorem in homotopical algebra*, (10 pages).

Grants

- NSF Grant from the Topology/Foundations Program, “The chromatic splitting conjecture”, 1999-2002.
- NSF Postdoctoral Fellowship, 1994-1997.

Recent Courses Taught

- Math 121, Calculus I, Part I, Fall 2012
- Math 221, Vectors and Matrices, Spring 2008.
- Math 222, Multivariable Calculus, Fall 2010, Fall 2008, Fall 2007.
- Math 223, Linear Algebra, Spring 2009.
- Math 225, Real Analysis, Spring 2010.
- Math 244, Point Set Topology, Fall 2011
- Math 274, Graph Theory, Spring 2009.
- Math 523, Topology I, Fall 2008.
- Math 524, Topology I, Spring 2011.
- Math 525, Topology II, Fall 2007.
- Math 526, Topology II, Spring 2010, Spring 2012
- Math 544, Algebra I, Spring 2013

Graduate Students

- Gabriel Valenzuela, current.
- David White, current.
- Daniel Bravo-Vivallo, Ph. D. (2011). Currently Assistant Professor of Mathematics, Universidad Austral de Chile.
- Mehdi Khorami, Ph. D. (2010). Currently Assistant Professor of Mathematics, Eastern Connecticut State University.
- Weiwei Pan, Ph. D. (2009). Currently Assistant Professor of Mathematics, St. Mary’s College of California.
- James Gillespie, Ph. D. (2003). Currently Associate Professor of Mathematics, Ramapo College of New Jersey.
- Manuel Lopez, Ph. D. (2003). Currently Associate Professor, Department of Mathematics, Rochester Institute of Technology.
- Sally Lesik, MA (2000). Currently Associate Professor, Department of Mathematical Sciences, Central Connecticut State University.

Professional service

- Regular speaker at international conferences in algebraic topology, most recently at the 2013 Murcia (Spain) conference on Recent Trends in Rings and Algebras, the 2011 Hamburg conference on Structured Ring Spectra, the 2011 Banff International Research Station conference on Triangulated categories and applications, the 2009 Homotopy theory and applications conference at the University of Nebraska, the 2008 conference on algebraic topology in Buenos Aires, and the 2008 Banff International Research Station conference on “New Topological Contexts for Galois Theory and Algebraic Geometry”.
- Regular speaker in local seminars, particularly at Wesleyan and MIT.
- Editor, *Advances in Mathematics*, 11/2000-6/2011
- Editor, *Homology, homotopy, and its applications*, 10/02-12/05.
- Reviewer for the NSF Topology program and NSERC. NSF Panelist in 2005 and 2008.
- Reviewer for *Math. Reviews*.
- Referee for multiple journals, including *Annals of Math*, *American Journal of Math*, *Math. Zeitschrift*, *Acta Mathematica*, *Bulletin of the London Math. Society*, *Topology*, *Transactions of the AMS*, and *Geometry and Topology*. Served as outside reviewer in tenure case at Hofstra University and Pomona College.
- Moderator for algebraic topology section of the arXive, the Los Alamos preprint server.
- Administrator, with Clarence Wilkerson, of the main electronic archive of papers in algebraic topology at `hopf.math.purdue.edu`.

University service

- Chair, Wesleyan Mathematics and Computer Science Department, 2010-current.
- Wesleyan Review and Appeals Board, 2007-2010.
- President of Wesleyan Phi Beta Kappa chapter, 2006-2009.
- Vice President/Secretary of Wesleyan Phi Beta Kappa chapter, 2003-2006.

- Service on numerous departmental committees, including hiring committee in 2005-2006 and standing committees such as the graduate education committee, undergraduate prizes committee, departmental advisory committee, and computer committee.
- Outside examiner, Swarthmore College honors program, 2010 and 2011.