

Dan Edidin

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Research Interests: Algebraic Geometry and its applications.

Education

1986 B.A. and M.A. in Mathematics The Johns Hopkins University
1991 Ph.D. in Mathematics Massachusetts Institute of Technology

Experience

2014- 2019 Leonard M. Blumenthal Distinguished Professor of Mathematics.
2010 - 2014 Director of Graduate Studies, Department of Mathematics
2004 - Professor of Mathematics, University of Missouri, Columbia.
Spring 2009 Research Member, MSRI.
1999 - 2004 Associate Professor of Mathematics, University of Missouri, Columbia.
1995- 1999 Assistant Professor of Mathematics, University of Missouri, Columbia.
1993-1995 L.E. Dickson Instructor and N.S.F. post-doctoral fellow, University of Chicago.
Spring 1993 Teaching Visitor, Cornell University.
Fall 1992 Postdoctoral Associate, MIT.
1991-1992 Visiting Assistant Professor of Mathematics, Syracuse University.

Patent

US Patent 7392181: R. Balan, P.G. Casazza, D. Edidin and J. Rosca, System and method for nonlinear signal enhancement that bypasses a noisy phase of a signal.

Publications

Volumes edited.

1. Bulletin of the Brazilian Math Society, special issue in honor of Steven L. Kleiman and Aaron Simis, December 2014. (coeditors E. Esteves, A Hefez, R. Piene, B. Ulrich).
2. Communications in Algebra, v.31 no 8 (pp. 3547–4152), (with S. Colley, D. Grayson and R. Piene). Special issue in honor of Steven L. Kleiman, Dekker 2003.
3. *Vector bundles and representation theory*, (with S.D. Cutkosky, Z. Qin and Q. Zhang), American Mathematical Society, 2003.

Submitted articles

1. *Canonical reduction of stabilizers for Artin stacks with good moduli spaces*, (with David Rydh) arXiv:1710:03220, submitted.
2. *The algebraic geometry of ambiguities in one-dimensional phase retrieval*, arXiv:1811:06963, under revision SIAM Journal on Applied Algebra and Geometry (SIAGA).
3. *Blind phaseless short-time Fourier transform recovery* (with Tamir Bendory and Yonina Eldar), arxiv:180807414, submitted.

Accepted articles

4. *Towards and intersection Chow cohomology for GIT quotients* (with Matt Satriano), Transformation Groups (arxiv 1707.05890)
5. *On signal reconstruction from FROG measurements* (with Tamir Bendory and Yonina Eldar), Applied and Computational Harmonic Analysis, in press (arxiv:170608494).

Published articles

6. *Inertial Chow rings of toric stacks* (with Thomas Coleman), Manuscripta Math, **156** (2018), pp. 341–369.
7. *Recovering signals from their FROG trace*, Proceedings of 2018 IEEE international conference on acoustics, speech and signal processing (ICASSP), (with. T Bendory and Y. Eldar), pp. 1488-1492.
8. *Strong cycles and intersection products on good moduli spaces* (with Matt Satriano), in *K-Theory (Mumbai, 2016)*, pp. 225–240, Tata Inst. Fund. Res. Stud. Math. **23**, Tata Inst. Fund. Res. Mumbai, 2018.
9. *Projections and phase retrieval*, Applied and Computational Harmonic Analysis **42** 350–359 (2017).
10. *Chern classes and compatible power operations in inertial K-theory* (with T. Jarvis and T. Kimura), Annals of K-theory **2** 73–130 (2017).
11. *Strong regular embeddings of Deligne-Mumford stacks and hypertoric geometry*, Michigan Journal of Math **65** 389–412 (2016).
12. *A plethora of inertial products* (with T. Jarvis and T. Kimura), Annals of K-theory, **1** 85–108 (2016).
13. *An algebraic characterization of injectivity in phase retrieval* (with A. Conca, M. Hering and C. Vinzant), Applied and Computational Harmonic Analysis, **38** 346–356 (2015).
14. *There is no degree map of 0-cycles on Artin stacks* (with A. Geraschenko and M. Satriano), Transformation Groups **18** 385–389 (2013).
15. *Integration on Artin toric stacks and Euler characteristics* (with Y. More), Proceedings of the AMS **141** 3689–3699 (2013).
16. *Riemann-Roch for Deligne-Mumford stacks in A celebration of algebraic geometry*, Clay Math Proceedings **18** 241–266 (2013). (Solicited article).
- 17.. *Equivariant geometry and the cohomology of the moduli space of curves*, Handbook of Moduli (G. Farkas and I. Morrison editors) 259–292 (Solicited article).
18. *Partial desingularizations of good moduli spaces of Artin toric stacks*, (with Y. More), Michigan Math Journal **61** 451–474 (2012).
19. *Normalization of the 1-stratum of the moduli space of stable curves* (with D. Fulghesu) Portugalia Math **69** 167–192 (2012).

20. *Logarithmic trace and orbifold products*, (with T. Jarvis and T. Kimura), *Duke Math. Journal* **153** (2010), 427–473.
21. *Grassmannians and representations*, (with C. Francisco), *Journal of Commutative Algebra* **1**, (2009), 381–393.
22. *Painless reconstruction from magnitudes of frame vectors* (with. R. Balan, B. Bodmann and P. Casazza,), *Journal of Fourier Analysis and Applications* **15**, (2009), 488–501.
23. *The integral Chow ring of the stack of hyperelliptic curves of even genus*, (with D. Fulghesu) *Math Research Letters*, **16**, (2009), 27–40.
24. *Algebraic cycles and completions of equivariant K-theory*, (with W. Graham) *Duke Math. Journal* **144** (2008), no. 3, 489–524.
25. *The integral Chow ring of the stack of at most 1-nodal rational curves* (with D. Fulghesu), *Communications in Algebra* **36** (2008), 581–594.
26. *The Gromov-Witten and Donaldson-Thomas correspondence for trivial elliptic fibrations* (with Z. Qin), *Int. Journal Math*, **18** (2007), pp. 821-838.
27. *Equivalents of the Kadison-Singer problem* (with Pete Casazza), in *Function spaces* (Krzysztof Jarosz, editor) *Contemporary Math* **435**, pp 123–142.
28. *Projections and the Kadison-Singer problem* (with P. Casazza, D. Kalra and V. Paulsen), *Operators and Matrices*, **1**. (2007), pp. 391–408.
29. *Equivalence of reconstruction from the absolute value of the frame coefficients to a sparse representation problem*, (with R Balan and P. Casazza) *IEEE Signal Processing Letters*, **14** (2007), pp. 341-343
30. *A fundamental identity for frames* (with R. Balan, P.G.Casazza and G. Kutyniok), *Proc. AMS.*, **135** (2007), pp. 1007-1015.
31. *On signal reconstruction without phase*, (with R. Balan and P. Casazza), *Applied and Computational Harmonic Analysis*, **20** (2006), pp. 345-356.
32. *Nonabelian localization in equivariant K-theory and Riemann-Roch for quotients*, (with W. Graham), *Advances in Math*, **198**, (2005), pp. 547-582. (This article was solicited for the volume honoring Michael Artin.)
33. *On signal reconstruction from the absolute value of frame coefficients* (with R. Balan and P.G. Casazza), *Proceedings of S.P.I.E., Wavelets XI*, **5914** (2005) pp. 591315 (1-8).
34. *Decomposition of frames and a new frame identity*, (with R. Balan, P.G. Casazza, and G. Kutyniok), *Proceedings S.P.I.E., Wavelets XI* **5914** (2005) pp. 591417 (1-10).
35. *Gromov-Witten invariants of the Hilbert scheme of 3-points in \mathbf{P}^2* , (with W.-P. Li, Z. Qin), *Asian J. Math* **7** (2003), pp. 551-574 (2003).
36. *Riemann-Roch for quotients and Todd classes of toric varieties*, (with W. Graham), *Communications in Algebra* **31** (2003), pp. 3735–3752.
37. *What is a stack?*, *Notices of the American Mathematical Society* **50**, no. 4, April 2003, pp. 458-459 (solicited article).

38. *Brauer Groups and quotient stacks*, with B. Hassett, A. Kresch and A. Vistoli, *American Journal of Math*, **123** (2001), pp. 761-777.
39. *Good representations and solvable groups*, (with W. Graham), *Michigan Math. Journal*, **48** (2000), pp. 203-213 (solicited article honoring William Fulton).
40. *Riemann-Roch for equivariant Chow groups*, (with W. Graham), *Duke Math. Journal*, **102**, (2000) pp. 567-594.
41. *Notes on the construction of the moduli space of curves*, in *Recent Progress in Intersection Theory, proceedings of the International Conference on Intersection Theory* pp. 85-114, Birkhauser, Boston (2000).
42. *Localization in equivariant intersection theory and the Bott residue formula*, (with W. Graham), *American Journal of Math*, **120** (1998) pp. 619-636.
43. *Equivariant intersection theory* (with W. Graham), *Inventiones Math.*, **131** (1998) pp. 595-634.
44. *Algebraic cuts* (with W. Graham), *Proceedings of the A.M.S.*, **126** (1998) pp. 677-685.
45. *Characteristic classes in the Chow ring* (with W. Graham), *Journal of Algebraic Geometry*, **6** (1997) pp. 431-443.
46. *Towards the homology of Hurwitz spaces* (with S. Diaz), *Journal of Differential Geometry*, **43** (1996) pp. 66-98.
47. *Characteristic classes and quadric bundles* (with W. Graham), *Duke Math. Journal* **78** (1995) pp. 277-299.
48. *Picard groups of Severi varieties*, *Communications in Algebra*, **22**(6) (1994) pp. 2073-2081.
49. *Brill-Noether theory in codimension-two*, *Journal of Algebraic Geometry*, **2** (1993) pp. 25-67.
50. *The codimension-two homology of the moduli space of stable curves is algebraic*, *Duke Math. Journal*, **67** (1992) pp. 241-272.
51. *The monodromy of certain families of linear series is at least the alternating group*, *Proceedings of the A.M.S.*, **113** (1991) pp. 911-922.

Recent talks

January 2016, Invited Talk, International Colloquium on K-theory, Tata Institute of Fundamental Research, Mumbai India.

March 2016, Invited Talk, Workshop on Equivariant Geometry and Algebraic Stacks, Australian National University, Kioloa, Australia.

April 2016, Colloquium, University of Kansas.

September 2016, Algebraic Geometry Seminar, University of Colorado-Boulder.

March 2017, Colloquium, University of Waterloo, Canada.

June 2017, Summer School on Intersection Theory, Korea Institute for Advanced Studies, Seoul.

June 2017, Seminar, Chinese Academy of Sciences, Beijing.

June 2017, Invited Talk, Workshop on Applied and Computational Harmonic Analysis, Chern Institute, Tianjin, China.

November 2017, Algebraic Geometry Seminar, Colorado State University.

December 2017, PACM Colloquium, Princeton University.

December 2017, Algebraic Geometry Seminar, Princeton University.
December 2017, Conference invitation, “The legacy of Carl Friedrich Gauss”, Sanya China. (Invitation declined because of family conflict).
October 2018, Algebraic Geometry Seminar, ETH Zurich.
November 2018, Algebraic Geometry Seminar, UBC, Vancouver Canada.
November 2018, Algebraic Geometry Seminar, University of Washington.
May 2019, Invited Talk, Mini-symposium on phase retrieval, 16th Approximation Theory conference, Vanderbilt University.
June 2019, Applied Math Seminar, Tel Aviv University
June 2019, Algebra Seminar, Ben Gurion University
June 2019, Algebra Seminar, Hebrew University.

Postdocs

Yogesh More, 2008-2011 (currently Assistant Professor, SUNY Old Westbury)
Damiano Fulghesu 2005-2008 (currently Assistant Professor, Minnesota State, Morehead).

Graduate Students

Ryan Richey, PhD 2019
Zhengning Hu, MA 2019
Thomas Coleman, PhD 2016
Ruveyda Karaman, MA 2013
Lindsey Woodland, MA 2011
Eugene Yampolsky, MA 2008 (ABD).
Nick Wegman, M.S. May, 2006.
Rob Brieler, M.S. May, 2004.
Shannon Koons, M.S. May, 2003.
Kenneth Yan, M.S. May, 2002.

Conferences organized

November 2016, I-70 Algebraic Geometry Symposium, MU.
May 2011, ShowME Algebraic Geometry Conference, MU
May 2008, Algebraic Geometry Day, University of Missouri (with Z. Qin and Q. Zhang).
May 2002, Conference honoring Steve Kleiman on his 60th birthday, Norwegian Academy of Sciences and Letters, Oslo (with S. Colley, D. Grayson, and R. Piene).
April 2002, Conference on Hilbert schemes, vector bundles and their interplay with representation theory, University of Missouri (with D. Cutkosky, Z. Qin and Q. Zhang).
October 1999, Midwest algebraic geometry conference, University of Missouri (with D. Cutkosky and Q. Zhang).
November 1999, Midwest Geometry conference, University of Missouri (member of the organizing committee). Organized (with J. Segert and Q. Zhang) Complex Geometry session.
November 1996, A.M.S. Regional Conference, University of Missouri (member of local organizing committee). Organizer (with Q. Zhang) of special session on Algebraic Geometry.