PUBLICATION LIST

ANDREW J. BLUMBERG

PUBLICATIONS

Listed publications are ordered chronologically (starting with the most recent). There are three sections: pure mathematics, topological data analysis and genomics, and computer science.

Pure mathematics.

(1) Andrew J. Blumberg, Teena Gerhardt, Michael A. Hill, and Tyler Lawson. The Witt vectors for Green functors. Preprint (submitted), arxiv:1803.05393 [math.AT]
(2) Andrew J. Blumberg and Michael A. Mandell. E_2 structures and derived Koszul duality in string topology. To appear, *Algebraic and Geometric Topology*.
(3) Andrew J. Blumberg and Michael A. Hill. The right adjoint to the equivariant operadic forgetful functor on incomplete Tambara functors. To appear, *Contemporary Mathematics*.
(4) Andrew J. Blumberg and Michael A. Mandell. The strong Künneth theorem for topological periodic cyclic homology. Preprint (submitted), arxiv:1706.06846 [math.AT]
(5) Andrew J. Blumberg and Michael A. Hill. Incomplete Tambara functors. To appear, *Algebraic and Geometry Topology*.
(6) Andrew J. Blumberg and Michael A. Hill. G-symmetric monoidal categories of modules over equivariant commutative ring spectra. Preprint (submitted), arxiv:1511.07363 [math.AT].
(7) Andrew J. Blumberg and Michael A. Mandell. Tate-Poitou duality and the fiber of the cyclotomic trace for the sphere spectrum. Preprint (submitted), arxiv:1508.00014 [math.AT].
(8) Andrew J. Blumberg and Michael A. Mandell. The homotopy groups of the algebraic K-theory of the sphere spectrum. To appear, *Geometry and Topology*.
(9) Andrew J. Blumberg and Michael A. Mandell. The nilpotence theorem for the algebraic K-theory of the sphere spectrum. *Geometry and Topology* 21 (2017), 3453–3466.
(10) Vigleik Angeltveit, Andrew J. Blumberg, Teena Gerhardt, Michael A. Hill, Michael A. Mandell, and Tyler Lawson. Topological cyclic homology via the norm. Preprint (submitted), arxiv:1401.5001 [math.AT].
(11) Andrew J. Blumberg and Michael A. Hill. Operadic multiplications in equivariant spectra, norms, and transfers. *Advances in Mathematics* 285 (2015), 658–708.
(12) Andrew J. Blumberg and Michael A. Mandell. The homotopy theory of cyclotomic spectra. *Geometry and Topology* 19 (2015), 3105-3147.
(13) Andrew J. Blumberg, David Gepner, and Goncalo Tabuada. Higher K-theory of endomorphisms via noncommutative motives. *Trans. Amer. Math. Soc.* 368 (2016), 1435–1465.
(14) Andrew J. Blumberg and Emily Riehl. Homotopical resolutions associated to deformable adjunctions. *Algebraic and Geometric Topology* 14 (2014), 3021–3048.
(15) Vigleik Angeltveit, Andrew J. Blumberg, Teena Gerhardt, Michael A. Hill, and Tyler Lawson. Interpreting the Bokstedt smash product as the norm. *Proc. Amer. Math. Soc.* 144 (2016), 5419–5433.
(16) Matthew Ando, Andrew J. Blumberg, and David J. Gepner. Generalized parametrized objects, multiplicative Thom spectra, and twisted umkehr maps. To appear, *Geometry and Topology*.
(17) Andrew J. Blumberg and Michael A. Mandell. Localization for $THH(ku)$ and the topological Hochschild homology of Waldhausen categories. To appear, *Memoirs of the AMS*.
(18) Andrew J. Blumberg, David Gepner, and Goncalo Tabuada. Uniqueness of the multiplicative cyclotomic trace. *Advances in Mathematics* 260 (2014), 191–232.
(19) Andrew J. Blumberg, David Gepner, and Goncalo Tabuada. A universal characterization of higher algebraic K-theory. *Geometry and Topology* 17 (2013), 733-838.
(20) Andrew J. Blumberg and Michael A. Mandell. Localization theorems in topological Hochschild homology and topological cyclic homology. *Geometry and Topology* 16 (2012), 1053-1120.

(21) Matthew Ando, Andrew J. Blumberg, David J. Gepner, Michael J. Hopkins, and Charles Rezk. Units of ring spectra and Thom spectra. Preprint (split into two papers below for submission), arxiv:0810.4535 [math.AT].
(22) Matthew Ando, Andrew J. Blumberg, David J. Gepner, Michael J. Hopkins, and Charles Rezk. Units of ring spectra, orientations, and Thom spectra via rigid infinite loop space theory. *Journal of Topology* 7 (2014), 1077–1117.
(23) Matthew Ando, Andrew J. Blumberg, David J. Gepner, Michael J. Hopkins, and Charles Rezk. An ∞-categorical approach to R-line bundles, R-module Thom spectra, and twisted R-homology. *Journal of Topology* 7 (2014), 869–893.
(24) Matt Ando, Andrew J. Blumberg, and David Gepner. Twists of K-theory and TMF. *Proc. Symp. Pure Math.*, 81 (2010), 27-63.
(25) Andrew J. Blumberg and Michael A. Mandell. Derived Koszul duality and involutions in the algebraic K-theory of spaces. *Journal of Topology* (2011) 4, 327-342.
(26) Andrew J. Blumberg and Michael A. Mandell. Algebraic K-theory and abstract homotopy theory. *Advances in Mathematics* 226 (2011), 3760-3812.
(27) Andrew J. Blumberg, Ralph L. Cohen, and Christian Schlichtkrull. THH of Thom spectra and the free loop space. *Geometry and Topology* 14 (2010), 1165-1242.
(28) Andrew J. Blumberg. THH of Thom spectra which are E_∞ ring spectra. *Journal of Topology* 3 (2010), 535-560.
(29) Andrew J. Blumberg, Ralph L. Cohen, and Constantin Teleman. Open-closed field theories, string topology, and Hochschild homology. *Alpine perspectives on algebraic topology*, edited by C. Ausoni, K. Hess, and J. Scherer, Contemp. Math. 504 (2009) 53-76.
(30) Andrew J. Blumberg and Michael A. Mandell. The localization sequence for the algebraic K-theory of topological K-theory. *Acta Mathematica* 200 (2008) 155-179.
(31) Andrew J. Blumberg. Continuous functors as a model for the equivariant stable category. *Algebraic and geometric topology* 6 (2006) 2257-2295.
(32) Andrew J. Blumberg. A discrete model for S^1-equivariant homotopy theory. *Journal of Pure and Applied Algebra* Journal of Pure and Applied Algebra 210 (2007) 29-41.

Topological data analysis and genomics.

(1) Raul Rabadan and Andrew J. Blumberg. Topological data analysis for genomics and evolution. Cambridge University Press. In preparation (under contract), 357 pages, to appear 2018.
(2) Nathaniel B. Edelman, Paul Frandsen, Michael Miyagi, Bernardo Clavijo, John Davey, Rebecca Dikow, Gonzalo Garca-Accinelli, Nick Patterson, Daniel Neafsey, Richard Challis, Sujai Kumar, Gilson Moreira, Camilo Salazar, Brian Counterman, Riccardo Papa, Annabel Whibley, Kanchon Dasmahapatra, Marcus Kronforst, Mathieu Joron, Chris D. Jiggins, W. Owen McMillan, Andrew J. Blumberg, John Wakeley, David Jaffe, and James Mallet. Understanding the radiation of Heliconius butterflies using 20 de novo genome assemblies. Preprint (submitted), 2018.
(3) Luis Aparicio, Mykola Bordyuh, Andrew J. Blumberg, and Raul Rabadan. Quasi-universality in single-cell sequencing data. Preprint (submitted), biorxiv, doi:https://doi.org/10.1101/426239, 2018.
(4) Devon P. Humphreys, Melissa R. McGuirl, Michael Miyagi, and Andrew J. Blumberg. Fast estimation of recombination rates using topological data analysis. Preprint (submitted), biorxiv, https://doi.org/10.1101/395210, 2018.
(5) Andrew J. Blumberg, Prithwish Bhaumik, and Stephen G. Walker. Testing to distinguish measures on metric spaces. Preprint (submitted), arxiv:1802.01152 [stat.ME]
(6) Andrew J. Blumberg and Michael Lesnick. Universality of the homotopy interleaving distance. Preprint (submitted), arxiv:1705.01690 [math.AT].
(7) Jin-Ku Lee, Jiguang Wang, Jason K Sa, Erik Ladewig, Hae-Ock Lee, In-Hee Lee, Hyun Ju Kang, Daniel S Rosenbloom, Pablo G Camara, Zhaoqi Liu, Patrick Van Nieuwenhuizen, Sang Won Jung, Seung Won Choi, Junhyung Kim, Andrew Chen, Kyu-Tae Kim, Sang Shin, Yun Jee Seo, Jin-Mi Oh, Yong Jae Shin, Chul-Kee Park, Doo-Sik Kong, Ho Jun Seol, Andrew J. Blumberg, Jung-Il Lee, Antonio Iavarone, Woong-Yang Park, Raul Rabadan, Do-Hyun Nam. Spatiotemporal genomic architecture informs precision oncology in glioblastoma. *Nature Genetics* 49 (2017), 594–599.
(8) Soledad Villar, Afonso Bandeira, Andrew J. Blumberg, and Rachel Ward. A polynomial-time relaxation of the Gromov-Hausdorff distance. Preprint (submitted), arxiv:1610.05214 [math.GT].
(9) Sakellarios Zairis, Hossein Khiabanian, Andrew J. Blumberg, and Raul Rabadan. Genomic data analysis in tree spaces. Preprint, arxiv:1607.07503 [q-bio.GN]
(10) Jiguang Wang, Emanuela Cazzato, Erik Ladewig, Veronique Frattini, Daniel I. S. Rosenbloom, Sakellarios Zairis, Francesco Abate, Zhaoqi Liu, Oliver Elliott, Yong-Jae Shin, Jin-Ku Lee, In-Hee Lee, Woong-Yang Park, Marica Eoli, Andrew J. Blumberg, Anna Lasorella, Do-Hyun Nam, Gaetano Finocchiaro, Antonio Iavarone, and Raul Rabadan. Clonal evolution of glioblastoma under therapy. *Nature Genetics* 48 (2016), 768-776.
(11) Sakellarios Zairis, Hossein Khiabanian, Andrew J. Blumberg, and Raul Rabadan. Moduli spaces of phylogenetic trees describing tumor evolutionary patterns. *Springer Lecture Notes in Computer Science* 8609 (2014).
(12) Andrew J. Blumberg, Itamar Gal, Michael A. Mandell, and Matthew Pancia. Persistent homology for metric measure spaces, and robust statistics for hypothesis testing and confidence intervals. *Foundations of Computational Mathematics* 14 (2014), 745-789.
(13) Andrew J. Blumberg and Michael A. Mandell. Quantitative homotopy theory in topological data analysis. *Foundations of Computational Mathematics* 13 (2013), 885-911.

Computer science.

(1) Riad Wahby, Ye Ji, Andrew J. Blumberg, abhi shelat, Justin Thaler, Michael Walfish, and Thomas Wies. Full accounting for verifiable outsourcing. In *Proceedings of ACM Conference on Computer and Communications Security (ACM CCS)* (2017).

(2) Sebastian Angel, Riad S. Wahby, Max Howald, Joshua B. Leners, Michael Spilo, Zhen Sun, Andrew J. Blumberg, and Michael Walfish. Defending against malicious peripherals with Cinch. In *Proceedings of Usenix Security Symposium* (2016).

(3) Riad S. Wahby, Srinath Setty, Zuocheng Ren, Andrew J. Blumberg, and Michael Walfish. Efficient RAM and control flow in verifiable outsourced computation. In *Proceedings of the 22nd Network and Distributed System Security Symposium (NDSS)* (2015).

(4) Michael Walfish and Andrew J. Blumberg. Verifying computations without reexecuting them: from theoretical possibility to near-practicality. *Communications of the ACM*, 58 (2015), 74–84.

(5) Justin Thaler, Victor Vu, Andrew J. Blumberg, and Michael Walfish. Verifiable Computation Using Multiple Provers. Preprint, Cryptology ePrint 846 (2014).

(6) Ben Braun, Ariel Feldman, Srinath Setty, Zuocheng Ren, Andrew J. Blumberg, and Michael Walfish. Verifying computations with state. In *Proceedings of the 24th ACM Symposium on Operating Systems Principles (SOSP)*, (2013).

(7) Victor Vu, Srinath Setty, Andrew J. Blumberg, and Michael Walfish. A hybrid architecture for interactive verifiable computation. In *Proceedings of IEEE Symposium on Security and Privacy* (2013).

(8) Srinath Setty, Victor Vu, Benjamin Braun, Andrew J. Blumberg, Bryan Parno, and Michael Walfish. Resolving the conflict between generality and plausibility in verified computation. In *Proceedings of Eurosys* (2013).

(9) Srinath Setty, Victor Vu, Nikhil Panpalia, Benjamin Braun, Andrew J. Blumberg, and Michael Walfish. Taking proof-based verified computation a few steps closer to actual practicality. In *Proceedings of Usenix Security Symposium* (2012).

(10) Srinath Setty, Richard McPherson, Andrew J. Blumberg, and Michael Walfish. Making argument systems for outsourced computation practical (sometimes). In *Proceedings of the 19th Network and Distributed System Security Symposium (NDSS)* (2012).

(11) Raluca A. Popa, Andrew J. Blumberg, Hari Balakrishnan, and Frank Li. Location privacy and accountability in aggregate statistics for mobile systems. In *Proceedings of ACM Conference on Computer and Communications Security (ACM CCS)* (2011).

(12) Srinath Setty, Andrew J. Blumberg, and Michael Walfish. Toward practical and unconditional verification of remote computations. In *Proceedings of the 13th Workshop on Hot Topics in Operating Systems (HotOS)* (2011).

(13) Andrew J. Blumberg and Peter Eckersley. On locational privacy, and how to avoid losing it forever. *Electronic Frontier Foundation whitepaper* (2009).

(14) Raluca A. Popa, Hari Balakrishnan, and Andrew J. Blumberg. Protecting privacy in location-based vehicular services. In *Proceedings of Usenix Security Symposium* (2009).