

## 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 and Michael A. Mandell. The strong Künneth theorem for topological periodic cyclic homology. Preprint (submitted), arxiv:1706.06846 [math.AT]
- (2) Andrew J. Blumberg and Michael A. Hill. Incomplete Tambara functors. To appear, *Algebraic and Geometry Topology*.
- (3) 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].
- (4) 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].
- (5) Andrew J. Blumberg and Michael A. Mandell. The homotopy groups of the algebraic K-theory of the sphere spectrum. Preprint (submitted), arxiv:1408.0133 [math.AT].
- (6) 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.
- (7) 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].
- (8) Andrew J. Blumberg and Michael A. Hill. Operadic multiplications in equivariant spectra, norms, and transfers. *Advances in Mathematics* 285 (2015), 658–708.
- (9) Andrew J. Blumberg and Michael A. Mandell. The homotopy theory of cyclotomic spectra. *Geometry and Topology* 19 (2015), 3105–3147.
- (10) Andrew J. Blumberg, David Gepner, and Goncalo Tabuada. Higher  $K$ -theory of endomorphisms via non-commutative motives. *Trans. Amer. Math. Soc.* 368 (2016), 1435–1465.
- (11) Andrew J. Blumberg and Emily Riehl. Homotopical resolutions associated to deformable adjunctions. *Algebraic and Geometric Topology* 14 (2014), 3021–3048.
- (12) 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.
- (13) Matthew Ando, Andrew J. Blumberg, and David J. Gepner. Generalized parametrized objects, multiplicative Thom spectra, and twisted umkehr maps. To appear, *Geometry and Topology*.
- (14) 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*.
- (15) Andrew J. Blumberg, David Gepner, and Goncalo Tabuada. Uniqueness of the multiplicative cyclotomic trace. *Advances in Mathematics* 260 (2014), 191–232.
- (16) Andrew J. Blumberg, David Gepner, and Goncalo Tabuada. A universal characterization of higher algebraic  $K$ -theory. *Geometry and Topology* 17 (2013), 733–838.
- (17) Andrew J. Blumberg and Michael A. Mandell. Localization theorems in topological Hochschild homology and topological cyclic homology. *Geometry and Topology* 16 (2012), 1053–1120.
- (18) 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].
- (19) 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.

- (20) Matthew Ando, Andrew J. Blumberg, David J. Gepner, Michael J. Hopkins, and Charles Rezk. An  $\infty$ -categorical approach to R-line bundles, R-module Thom spectra, and twisted R-homology. *Journal of Topology* 7 (2014), 869–893.
- (21) Matt Ando, Andrew J. Blumberg, and David Gepner. Twists of  $K$ -theory and  $TMF$ . *Proc. Symp. Pure Math.*, 81 (2010), 27-63.
- (22) 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.
- (23) Andrew J. Blumberg and Michael A. Mandell. Algebraic  $K$ -theory and abstract homotopy theory. *Advances in Mathematics* 226 (2011), 3760-3812.
- (24) 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.
- (25) Andrew J. Blumberg.  $THH$  of Thom spectra which are  $E_\infty$  ring spectra. *Journal of Topology* 3 (2010), 535-560.
- (26) 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.
- (27) 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.
- (28) Andrew J. Blumberg. Continuous functors as a model for the equivariant stable category. *Algebraic and geometric topology* 6 (2006) 2257-2295.
- (29) Andrew J. Blumberg. A discrete model for  $S^1$ -equivariant homotopy theory. *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), to appear 2017.
- (2) Andrew J. Blumberg and Michael Lesnick. Universality of the homotopy interleaving distance. Preprint (submitted), arxiv:1705.01690 [math.AT].
- (3) 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.
- (4) 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].
- (5) Sakellarios Zairis, Hossein Khiabani, Andrew J. Blumberg, and Raul Rabadan. Genomic data analysis in tree spaces. Preprint, arxiv:1607.07503 [q-bio.GN]
- (6) 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.
- (7) Sakellarios Zairis, Hossein Khiabani, Andrew J. Blumberg, and Raul Rabadan. Moduli spaces of phylogenetic trees describing tumor evolutionary patterns. *Springer Lecture Notes in Computer Science* 8609 (2014).
- (8) 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.
- (9) 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).