Tom Mainiero

Curriculum Vitae

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Education

2015 The University of Texas at Austin: Ph.D in Physics. Advisor: Andrew Neitzke

2008 Caltech: BS in Physics

Employment

2015-2020 Rutgers New High Energy Theory Center, Department of Physics: Postdoctoral Researcher.

Preprints/Publications

T. Mainiero. *Homological Tools for the Quantum Mechanic*. arXiv:1901.02011 [hep-th].

T. Mainiero. *Algebraicity and Asymptotics: An explosion of BPS indices from algebraic generating series*. arXiv:1606.02693 [hep-th].

D. Galakhov, P. Longhi, T. Mainiero, G.W. Moore, and A. Neitzke. *Wild Wall Crossing and BPS Giants*. JHEP 1311 (2013) p. 046. arXiv:1305.5454 [hep-th].

T. Mainiero and M.A. Porter. *Quantization of a Free Particle Interacting Linearly with a Harmonic Oscillator*. Chaos 17 (2007) p. 043130. arXiv:nlin/0702025.

T. Mainiero and M.A. Porter. *Avoided Level Crossings in the Quantization of a Mixed Regular-Chaotic System*. Chaos 17 (2007) p. 041106.

In Progress T. Mainiero. *Categorification of Mutual Information.*

In Progress R. Geiko, T. Mainiero, and G.W. Moore. *Canonical Correspondences between Matrix Product States, Completely Positive Maps, and 2D Topological Field Theories*

Contributed Talks

Jul. 2020 String Math 2020. *The Secret Topological Life of Mutual Information*.

Mar. 2019 Arizona State University Differential Geometry and Control Theory Seminar. *Bill and Ted's Entropic Adventure.*

Dec. 2018 University of Maryland Joint RIT on Quantum Information Seminar. *Some homological tools for the quantum mechanic.*

Jan. 2018 Arizona State University Differential Geometry and Control Theory Seminar. *A Probability Talk that Spaces Out.*

Oct. 2016 Arizona State University Differential Geometry and Control Theory Seminar. *(Dr.) Strange Duality or: how I learned to stop dozing off and learned to love (the) Boolean algebras.*

Nov. 2015 Arizona State University Differential Geometry and Control Theory Seminar. *Morse(t) I listen to this talk?*

Nov. 2014 Kansas State Mathematics M-Seminar. *This one weird trick has algebraic functions generating Donaldson-Thomas invariants from home!*

Sep. 2014	Texas A&M High Energy Theory Seminar. *The Joy of Watching your BPS States Grow Up*.
Jul. 2014	West Coast Algebraic Topology Summer School on TFTs. *Quantum Chern Simons*.
May 2014	Emphasis Year Workshop on Rep. Theory, Integrable Systems, and Quantum Fields. *Functional Equations and DT-Invariants from Spectral Networks: Revenge of the m-herds*.

Teaching Experience

Spr. 15	TA for M427L, Advanced Calculus for Applications II (Multivariable Calculus)
Fall 13 - Spr. 13	DRP Mentor (mentoring program for undergraduates interested in mathematics)
Fall 13	TA for M427K, Advanced Calculus for Applications I (Differential Equations)
Fall 12	TA for M408D, Sequences, Series, and Multivariable Calculus
Fall 10 - Spr. 12	Instructor for PS 303, Introduction to Physical Science (Mechanics)
Fall 08 - Sum. 10	TA for PHY 303K/L, Engineering Physics I/II (Mechanics/Electromagnetism)

Service

Fall 18 - Fall 19	Co-organizer for Rutgers High Energy Theory Seminar