Curriculum Vitae

Surya Raghavendran

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Research Interests

- Applications of derived and noncommutative algebraic geometry to high energy physics, with an eye towards mathematical formulations of string dualities

- Realizations of integrable systems in string theory and gauge theory

- Applications of the above to geometric representation theory and enumerative geometry

Academic appointments

July 2023— present	**Position:**	Gibbs Assistant Professor
	Where:	Department of Mathematics, Yale University

Education

September 2017— June 2023	**Degree:**	PhD in Mathematics
	Where:	Perimeter Institute for Theoretical Physics, & University of Toronto
	Advisor:	Kevin Costello
September 2016— May 2017	**Degree:**	MS in Physics
	Where:	Perimeter Institute for Theoretical Physics, & University of Waterloo
	Advisor:	Kevin Costello
	Perimeter Scholars International Program	
August 2013— May 2016	**Degree:**	BS in Mathematics
	Where:	University of Texas at Austin
	Advisor:	David Ben-Zvi

Selected Writing

- N. Garner, S. Raghavendran, and B. Williams *Higgs and coulomb branches from superconformal raviolo vertex algebras*, 2023. `arXiv:2310.08524`

- N. Garner, S. Raghavendran, and B. Williams *Enhanced symmetries in minimally-twisted three-dimensional supersymmetric theories*, 2023. `arXiv:2310.08516`

- S. Raghavendran and B. Williams *A holographic approach to the six-dimensional superconformal index*, 2022. `arXiv.2210.07910`

- S. Raghavendran, I. Saberi, and B. Williams *Twisted eleven-dimensional super-gravity*, Commun. Math. Phys. 402, 1103–1166 (2023). `https://doi.org/10.1007/s00220-023-04745-2`

- N. Ishtiaque, S.F. Moosavian, S. Raghavendran, and J. Yagi *Superspin chains from superstring theory*, 2021. SciPost Phys. 13 (2022) 083
- S. Raghavendran and P. Yoo *Twisted S-Duality*, 2019. `arXiv:1910.13653`

Selected Talks

- "Twisted string dualities", Boston University Geometry and Physics seminar, 2022
- "Twisted eleven-dimensional supergravity and exceptional lie algebras" Oxford Junior Geometry and Physics seminar, 2021
- "Twisted S-duality", Heidelberg, Mainz, Munich, Vienna joint Mathematical Physics seminar, 2021
- "BV Quantization of the Rozansky-Witten Model", Perimeter Institute Learning Seminar on Rozansky-Witten Theory, 2020
- "Slodowy Varieties, Parabolic W-algebras, and an Introduction to Shifted Yangians", University of Toronto Geometric Representation Theory Learning Seminar, 2020
- "The Springer Correspondence", University of Toronto Geometric Representation Theory Learning Seminar, 2019
- "One-dimensional Chern Simons theory and the $\hat{A}$-genus", Perimeter Institute Renormalization and Effective Field Theory Learning Seminar, 2019
- "Khovanov Homology, Coherent Convolution 2-Categories, and Surface Defects in 5d $\mathcal{N} = 2$ Gauge Theory", BIRS workshop on Quantum Field Theory and Factorization Algebras, 2019

Pedagogy

July 2023— present	**Position:** Course Instructor (Applied Linear Algebra MATH222) **Where:** Department of Mathematics, Yale University
May 2021— June 2021	**Position:** Teaching Assistant (Linear Algebra MAT224) **Where:** Department of Mathematics, University of Toronto
May 2020— June 2020	**Position:** Teaching Assistant (Linear Algebra MAT224) **Where:** Department of Mathematics, University of Toronto
September 2019— December 2019	**Position:** Teaching Assistant (Linear Algebra MAT188) **Where:** Department of Mathematics, University of Toronto
September 2019— December 2019	**Position:** Teaching Assistant (Calculus MAT186) **Where:** Department of Mathematics, University of Toronto

Technical Skills
Software
Mathematica, Python, LaTeX

Outreach

- Mentored an undergraduate student on *Heat Kernels and Dirac Operators* (January-May 2022)
- Mentored two high school students in introductory fluid dynamics and differential geometry of curves and surfaces (January-May 2021)