

# Apurva Nakade

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<b>Interests</b>	Homotopy theory, Algebraic topology, Mathematical Physics, Symplectic Topology, Manifold Calculus, Stable Homotopy theory, Cobordism Categories, Math Education, Web design	
<b>Education</b>	Ph.D. in Mathematics, Johns Hopkins University	2019
	M.Sc. in Mathematics, Chennai Mathematical Institute	2013
	B.Tech. in Computer Science & Engineering, IIT Kanpur	2010
<b>Papers</b>	<i>Constructing a Homotopy Type For Triply-Graded Link Homology</i> (joint with V. Lorman), (in preparation)	
	<i>Manifold Calculus and the h-principle</i> submitted to Homotopy, Homology, and Applications, arXiv 1711.07670	2017
	<i>Effect of increasing the energy gap between the two lowest energy states on the mixing time of the Metropolis algorithm</i> (with Somenath Biswas), Information Processing Letters, IPL4801 (2012.08.012)	2012
<b>Teaching &amp; Mentoring</b>	<i>William Kelso Morrill Award for Excellence in Mathematics</i> , JHU	2019
	Awarded each year to the graduate student who best displays love of teaching, love of mathematics, and concern for students	
	<i>Prof. Joel Dean award for Excellence in Teaching in Mathematics</i> , JHU	2016
	An annual award to recognize graduate students and faculty who have exhibited extraordinary performance in teaching undergraduates	
	<i>PFFF Teaching Academy Program</i> , JHU	2019
	Currently enrolled in a certification course	
	<i>Direct Reading Program</i> , JHU	2017-19
	<ul style="list-style-type: none"><li>• Guided four undergraduate student towards learning knot theory, manifold theory, tensor calculus, point-set topology</li><li>• Co-organizer for three semesters</li></ul>	
	<i>USA/Canada Mathcamp</i> , Academic Co-coordinator	2018
	<ul style="list-style-type: none"><li>• Coplanned the academic schedule</li><li>• Participated in mentor hiring</li><li>• Invited visiting speakers</li></ul>	

*USA/Canada Mathcamp*, Mentor 2017-19

- Designed and taught a variety of undergraduate-level courses
- Was residential and academic advisor at camp

*Course Design*, JHU 2017-19

- *H2G2 Algebraic Topology*, Designed and taught a two week course introducing algebraic topology to non-math majors
- *IBL Honors Single Variable Calculus*, Designed and taught two full semester IBL styled courses for Calculus
- *Symmetries & Polynomials*, Designed and taught a two week IBL course introducing Galois theory to non-math majors

*Algebra Quads Prep*, JHU 2015-18

Coached first year math graduate students for the algebra quads

*Science of Learning Symposium*, JHU 2014-18

Attended a biannual two day conference at JHU aimed at understanding the science behind learning

**Research**      *Weiss fibration sequence*      2019

**Talks**          MIT Talbot Workshop

*Constructing a Homotopy Type For Triply-Graded Link Homology*      2019

AMS Sectional Meeting, University of Hawaii

*Manifold Calculus and the h-principle*      2019

University of Rochester, Topology Seminar

*Manifold Calculus and the h-principle*      2019

Workshop on Functor Calculus, Ohio State University

*Homotopy colimits and limits*      2017

European Autumn School in Topology

*Manifold Calculus and the h-principle*      2017

AMS Special Session in Homotopy Theory

<b>Service</b>	<i>Instructor, JHU</i>	2014-18
<b>Courses</b>	<ul style="list-style-type: none"> <li>• Honors Single Variable Calculus</li> <li>• Calculus II for Engineers</li> <li>• Differential Equations</li> <li>• (Online) Linear Algebra</li> </ul>	
	TA, JHU & CMI	2012-19
	Compact Riemann Surfaces, Advanced Algebra, Calculus I, II and III, Hon. Linear Algebra, Hon. Multivariable Calculus, Topology, Lie algebras and Lie groups	
<b>Conferences</b>	MIT Talbot Workshop, Austin TX	2019
<b>Attended</b>	Workshop on Functor Calculus, Ohio State University	
	AMS Sectional Meeting, University of Hawaii	
	Arizona Winter School, Arizona State University	
	Joint Mathematical Meetings, Baltimore	
	Symplectic Geometry and Homotopy Theory, UCLA	2018
	MSRI Summer School, Fields Institute, Toronto	
	Graduate Student Conference, Temple University	
	AMS Sectional Meeting, UC Riverside	2017
	European Autumn School in Topology, Netherlands	
	Topology Festival, Cornell University	
	Georgia International Topology Conference, University of Georgia	
	Alpine Algebraic & Applied Topology Conference, Switzerland	2016
	WCATSS, University of Oregon, Eugene	
	GSTSC, Indiana University, Bloomington	
	Mid-Atlantic Topology Conference, Johns Hopkins University	
	Midwest Topology Seminar, Northwestern University	
	Geometry and Topology Conference, Lehigh University	2015
	Mid-Atlantic Topology Conference, University of Virginia	
	Midwest Topology Seminar, University of Illinois Chicago	
	Midwest Topology Seminar, Northwestern University	
	Modular invariants in Topology and Analysis, Regensburg	
	WCATSS on Field theories, UBC	
	Introductory Workshop on Algebraic Topology, MSRI	
	Joint Mathematical Meetings, Baltimore	
	Classification of Manifolds, NEHU	2013
	H-principle, Chennai Mathematical Institute	2012
	Groups and geometries, ISI, Bangalore	
	String Topology, Vivekananda University	
	Kervaire Invariant One, ISI, Kolkata	
	Number Theory workshop, Tezpur University	2011

	Lie algebras and their representations, CMI	
	Nurture camp, Institute of Mathematical Sciences	2007
<b>Pre-College</b>	<i>IMO bronze medal</i> , Slovenia, highest scorer from India	2006
	<i>273 rank</i> at Indian Institutes of Technology (IITs)	2006
	Elegant solution award at IMO training camp	
	Cleared national astronomy and regional physics and chemistry olympiads	
	Cleared national mathematics olympiad in the ninth grade	2003
	National Talent Search Examination, (NTSE) scholarship	
	Kishore Vaigyanik Protsahan Yojana, (KVPY) scholarship	
<b>Other Interests</b>	<i>Web Design</i> ,	
	I've designed and maintain a blog on Github using Hugo, SASS, JQuery	
	<i>Expository Math Writing</i>	
	I have dozens of notes from various courses, conferences, and research available freely on my website	