Apurva Nakade

University of Western Ontario, Department of Mathematics.
apurva.nakade@gmail.com
apurvnakade.github.io

Interests Homotopy theory, Algebraic topology, Mathematical Physics, 2-category theory, Symplectic Topology, Manifold Calculus, Stable Homotopy theory, Cobordism Categories, Math Education, Web design.

Positions

Postdoctoral Associate, University of Western Ontario 2019-21
Exotic Derivatives Trader, Nomura Capital India Pvt Ltd 2010

Education

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

Papers

Constructing a Homotopy Type For Triply-Graded Link Homology
(joint with V. Lorman), (in preparation)

Manifold Calculus and the h-principle 2017
submitted to Homotopy, Homology, and Applications, arXiv 1711.07670

Effect of increasing the energy gap between the two lowest energy states on the mixing time of the Metropolis algorithm (with Somenath Biswas), 2012
Information Processing Letters, IPL4801 (2012.08.012)

Teaching & Mentoring

William Kelso Morrill Award for Excellence in Mathematics, JHU 2019
Awarded each year to the graduate student who best displays love of teaching, love of mathematics, and concern for students

Prof. Joel Dean award for Excellence in Teaching in Mathematics, JHU 2016
An annual award to recognize graduate students and faculty who have exhibited extraordinary performance in teaching undergraduates

PFFF Teaching Academy Program, JHU 2019
Completed a certification course

Direct Reading Program, JHU 2017-19

- Guided four undergraduate student towards learning knot theory, manifold theory, tensor calculus, point-set topology
- Co-organizer for three semesters

USA/Canada Mathcamp, Academic Co-coordinator 2018

- Coplanned the academic schedule
- Participated in mentor hiring
- Invited visiting speakers

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 Quals Prep, JHU 2015-18

Coached first year math graduate students for the algebra quals

Science of Learning Symposium, JHU 2014-18

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

Research Talks

Weiss fibration sequence 2019

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

Service *Instructor*, JHU 2014-18

Courses

- Honors Single Variable Calculus
- Calculus II for Engineers
- Differential Equations
- (Online) Linear Algebr

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

Conferences Attended

MSRI Summer School, Cortona, Italy 2019
MRC Workshop, Providence RI
MIT Talbot Workshop, Austin TX
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
Pre-College	*IMO bronze medal*, Slovenia, highest scorer from India	2006
	273 rank 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	
Other Interests	*Web Design*,	
	I've designed and maintain a blog on Github using Hugo, SASS, JQuery	
	Expository Math Writing	
	I have dozens of notes from various courses, conferences, and research available freely on my website	