Pankaj Singh

Curriculum Vitae

✉ *pksingh@email.sc.edu*

Academic Job Profile:

Aug 2020 – Aug. 2025	**Ph.D. Mathematics**, *University of South Carolina*, Columbia, South Carolina. **Advisor:** Dr. Alexander Duncan **Current GPA:** 3.93 / 4.0 **Passed Qualifying exams** - **Analysis and Algebra** (August 2021) **Passed Comprehensive Exams** (November 2022)

Research Interests

Algebraic Geometry, Arithmetic Geometry, Galois Cohomology, K-theory.

Academic Details

Aug 2018 – Jun 2020	**M.S. (Mathematics)**, *Central Michigan University (CMU)*, Mt. Pleasant, Michigan, US. **GPA: 3.95 / 4.0**
Aug 2014 – Jun 2016	**M.Sc. (Mathematics and Computing)**, *Indian Institute of Technology(IIT)*, Guwahati, Assam, India.
Aug 2009 – May 2012	**B.Sc. (Mathematics and Statistics)**, *Mahatma Gandhi Kashi Vidyapeeth*, Varanasi, Uttar Pradesh.

Master's Thesis

Aug 2019 - June 2020	**Connectivity of the tropical double ramification cycle**, Supervision of Dr. Dmitry Zakharov, CMU, Department of Mathematics, Michigan, United States.

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$\rightarrow$ In this master's thesis, we studied the connectivity properties of a polyhedral object known as the tropical double ramification DR cycle. We prove that the tropical DR cycle has the same connectedness property as $M_{g,n}^{trop}$ for a particular choice of parameters.

Talks/Seminars

29th Nov., 2022	**Talk: "Homology of Noetherian and local rings (John Tate, 1957)"**, University of South Carolina, USC.
21st Nov., 2022	**Talk: "Classification of Toric Varieties over an arbitrary field"**, University of South Carolina, USC.
05th August, 2022	**Talk: "Borel Subgroups and Normalizer Theorem"**, Linear Algebraic Groups Seminar, University of South Carolina(USC).
22nd July, 2022	**Talk: "Maximal Tori and Fixed Point Theorem"**, Linear Algebraic Groups Seminar, University of South Carolina(USC).
21st July, 2022	**Talk: "Lie Algebra and quotient of algebraic groups"**, Linear Algebraic Groups Seminar, University of South Carolina(USC).
01st July, 2020	**Talk: "Connectivity of the tropical double ramification cycle"**, M.S. Thesis Defense, Central Michigan University(CMU).

University Teaching Experience

MATH 111	Instructor of Record (Spring 2023) - College Mathematics
MATH 170	Instructor of Record (Fall 2022) - Finite Mathematics
MATH 122	Instructor of Record (Summer 2022) - Calculus for BA & Soc Sciences
MATH 122	Instructor of Record (Spring 2022) - Calculus for BA & Soc Sciences
MATH 141	Teaching Assistant (Fall 2021) - Calculus I
MATH 142	Instructor of Record (Summer 2021) - Calculus II
MATH 141	Teaching Assistant (Fall 2020) - Calculus I
MATH 105	Instructor of Record (Fall 2019 / Spring 2020) - College Algebra

Summer Schools/Conferences/Workshops

24 May - 28 May, 2023	Arithmetic Geometry and Algebraic Groups, UNIVERSITY OF VIRGINIA (UVA), Charlottesville, VA.
28 April - 30 April, 2023	Georgia Algebraic Geometry Symposium'23(GAGS), UNIVERSITY OF GEORGIA (UGA), Athens, Georgia.
10 Dec - 11 Dec, 2022	Palmetto Number Theory Series (PANTS XXXV), UNIVERSITY OF SOUTH CAROLINA (USC), Columbia, SC.
24 Sep - 25 Sep, 2022	Palmetto Number Theory Series (PANTS XXXIV), UNIVERSITY OF NORTH CAROLINA (UNC), Charlotte, NC.
20 May - 21 May, 2022	AGNES Rutgers 2022, ALGEBRAIC GEOMETRY NORTHEASTERN SERIES, New Jersey, USA. (Virtual)
27 June - 08 July, 2022	COMBINATORIAL ALGEBRAIC GEOMETRY: TROPICAL AND REAL (HYBRID), INTERNATIONAL CENTRE FOR THEORETICAL SCIENCES, Bengaluru, India.
01 April - 03 April, 2022	The Georgia Algebraic Geometry Symposium (GAGS), Georgia, USA
01 Dec - 28 Dec, 2016	Annual Foundation School – I , IIT GUWAHATI, Assam India.

Scholastic Achievements

Fall 2018- Spring 2018	Recipient of **Dean's List, Central Michigan University.**
Spring 2018	Selected for **Integration Bee, Runner Up, Central Michigan University**
March 2016	Qualified **GATE (Graduate Aptitude Test in Engineering)**
June 2017	Qualified **National Board of Higher Mathematics**, National Board for Higher Mathematics (NBHM) was set up by the Government of India under the Department of Atomic Energy (DAE), to foster the development of higher mathematics in India. I was in the top 22 % students.

Professional Services

April 21, 2023	Reviewer for undergraduate (UG) poster presentations at Discover USC, Columbia Metropolitan Convention Center, Columbia, SC.
Fall 2022	Panelist, Graduate Teaching Assistant Orientation, University of South Carolina.

Papers/Publication

June 2020	Connectivity of the tropical double ramification cycle, Central Michigan University Scholarly and creative works

Teaching Experience

Spring 2021 - Fall 2022   Tutor, Math Tutoring Center, University of South Carolina

Fall 2019 - Spring 2020   Tutor, Math Tutoring Center, Central Michigan University

Technical Skills

Programming Languages: C/C++   Markup Language: LaTeX, Basic Sagemath

References

Available on request