

Pankaj Singh

Curriculum Vitae

✉ pksingh@email.sc.edu

Academic Job Profile:

Aug 2020 – **Ph.D. Mathematics**, [University of South Carolina](#), Columbia, South Carolina.
Aug. 2025 **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, Brauer Group, Galois Cohomology, K -theory, Representation theory.
(Currently, I am using Mackey functor and Brauer group to solve a classification problem, which uses the work done by J Green, Yoshida, Thévenaz, Webb, Linckelmann)

Academic Details

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

Master's Thesis

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

→ 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

13th Nov., 2023 **Talk: “On the proof of conjecture of Connectivity of DR cycle in codimension-1”**, AGCANT, UNIVERSITY OF SOUTH CAROLINA, USC.
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 122 Instructor of Record (Spring 2024 2023) - Calculus for BA & Soc Sciences
- MATH 111 Instructor of Record (Fall 2023) - College Algebra
- MATH 111I Instructor of Record (Spring 2023) - Intensive College Algebra
- 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

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

Scholastic Achievements

- Fall 2018- Recipient of **Dean's List, Central Michigan University.**
- Spring 2018
- 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

- Spring 2024 SHARP Grads Program at University of South Carolina.
Fall Organizer of Graduate Colloquium at University of South Carolina.
2023-Spring
2024
Fall Organizer of Algebraic Geometry, Commutative Algebra and Number Theory student seminar
2023-Spring at University of South Carolina.
2024
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.

Reports/Papers/Publication

- June 2020 [Connectivity of the tropical double ramification cycle](#), Central Michigan University Scholarly and creative works

Teaching Experience

- Spring 2021 - Tutor, Math Tutoring Center, University of South Carolina
Fall 2022
Fall 2019 - Tutor, Math Tutoring Center, Central Michigan University
Spring 2020

Technical Skills

Programming Languages: Basic C/C++

Markup Language: \LaTeX , Basic Sagemath,
Current Programming Language: Python

References

Available on request