

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, Arithmetic Geometry, Galois Cohomology, K -theory.

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,
Jun 2016 Assam, India.
Aug 2009 – **B.Sc. (Mathematics and Statistics)**, [Mahatma Gandhi Kashi Vidyapeeth](#), Varanasi, Uttar
May 2012 Pradesh.

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

29th Nov., **Talk: "Homology of Noetherian and local rings (John Tate, 1957)"**, UNIVERSITY OF
2022 SOUTH CAROLINA, USC.
21st Nov., **Talk: "Classification of Toric Varieties over an arbitrary field"**, UNIVERSITY OF SOUTH
2022 CAROLINA, USC.
05th August, **Talk: "Borel Subgroups and Normalizer Theorem"**, LINEAR ALGEBRAIC GROUPS
2022 SEMINAR, University of South Carolina(USC).
22nd July, **Talk: "Maximal Tori and Fixed Point Theorem"**, LINEAR ALGEBRAIC GROUPS SEMI-
2022 NAR, University of South Carolina(USC).
21st July, **Talk: "Lie Algebra and quotient of algebraic groups"**, LINEAR ALGEBRAIC GROUPS
2022 SEMINAR, University of South Carolina(USC).
01st July, **Talk: "Connectivity of the tropical double ramification cycle"**, M.S. THESIS DEFENSE,
2020 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

- 10 Dec - Palmetto Number Theory Series (PANTS XXXV), UNIVERSITY OF SOUTH CAROLINA
11 Dec, 2022 (USC), Columbia, SC.
24 Sep - Palmetto Number Theory Series (PANTS XXXIV), UNIVERSITY OF NORTH CAROLINA
25 Sep, 2022 (UNC), Charlotte, NC.
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), INTER-
08 July, 2022 NATIONAL CENTRE FOR THEORETICAL SCIENCES, Bengaluru, India.
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

- 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 - 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: C/C++

Markup Language: \LaTeX , Basic Sagemath

References

Available on request