

# 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

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

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## 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

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## 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

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## 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.

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## Professional Services

- Fall 2022 Invited Panelist, Graduate Teaching Assistant Orientation, University of South Carolina.

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## Papers/Publication

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

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## Teaching Experience

- Spring 2021 - Tutor, Math Tutoring Center, University of South Carolina
- Fall 2022
- Fall 2029 - Tutor, Math Tutoring Center, Central Michigan University
- Spring 2020

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## Technical Skills

Programming Languages: C/C++

Markup Language:  $\LaTeX$ , Basic Sagemath



## References

Available on request