

Dharm Veer

Curriculum Vitae

Basic Information

Name Dharm Veer
Occupation Post-Doctoral Fellow
Institution Indian Institute of Technology Gandhinagar, India
Gender Male
Citizenship Indian
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Homepage <https://cmidharm.github.io/>

Research Interest

Commutative Algebra and Combinatorics.

Academic Positions

November 25, 2022 – till date
Postdoctoral fellow, *Indian Institute of Technology Gandhinagar*, Gandhinagar, India.

Education

2016 – till date
Ph.D. in Mathematics, *Chennai Mathematical Institute*, Chennai, India.
Thesis submitted, expecting to complete doctorate in Mathematics in March 2023,
Thesis title : Homological Invariants of Hibi Rings and Polyominoes.
Thesis advisor : Prof. Manoj Kummini.

2014 – 2016
Master of Science in Mathematics, *Chennai Mathematical Institute*, Chennai, India.

2011 – 2014
Bachelor of Science (Honours) in Mathematics, *Motilal Nehru College, University of Delhi*, New Delhi, India.

2011
12th CBSE Board Examination, Jawahar Navodaya Vidyalaya, Faridabad, India.

Research Experience

August, 2016 – November, 2022
Research Scholar, CHENNAI MATHEMATICAL INSTITUTE, Chennai, India.

May 22 – August 6, 2016
Summer Fellow, CENTRE FOR EXCELLENCE IN BASIC SCIENCES (CBS), Mumbai, India,
Supervisor : Prof. Balwant Singh.

May 3 – June 2, 2015
Summer Fellow, CENTRE FOR EXCELLENCE IN BASIC SCIENCES (CBS), Mumbai, India,
Supervisor : Prof. Balwant Singh.

Publications/Pre-prints

Accepted papers

- Manoj Kummini and Dharm Veer. Charney-Davis conjecture for simple thin polyominoes, 2023. Commun. Algebra, 51(4):1654–1662. arXiv:2203.03487.
- Manoj Kummini and Dharm Veer. The h -polynomial and the rook polynomial of some polyominoes, 2023. Accepted in Electron. J. Combin.. arXiv:2110.14905.

Submitted

- Carmelo Cisto, Francesco Navarra and Dharm Veer. Polyocollection ideals and primary decomposition of polyomino ideals, 2023. Submitted. arXiv:2302.08337.
- Dharm Veer. Green-Lazarsfeld property N_p for Hibi rings, 2021. Submitted. aXiv:2108.03915.
- Dharm Veer. Green-Lazarsfeld property N_p for Segre product of Hibi rings, 2021. Submitted. aXiv:2108.03915.

Research Talks

- On Cohen-Macaulay posets of dimension 2 and permutation graphs, Conference on Commutative Algebra and Algebraic Geometry, IIT Hyderabad, India. February 2023.
- On the h -polynomial and the rook polynomial of some polyominoes, EMS Summer School on Combinatorial Commutative Algebra, Gebze Technical University, Istanbul, Turkey. August 2022.
- On Green-Lazarsfeld property N_p for Hibi rings, Virtual Commutative Algebra Seminars, IIT Bombay, Mumbai. March 2022. Video. Notes.
- On Green-Lazarsfeld property N_p for Hibi rings, National symposium on mathematics and applications, IIT Madras, Chennai. December 2021.
- On Green-Lazarsfeld property N_p for Hibi rings, 4th BRICS Mathematics Conference, IISER Tiruvananthapuram, Kerala. December 2021. Video.
- On Green-Lazarsfeld property N_p for Hibi rings, Research Seminar, CMI, Chennai. September, 2021.
- On h -Polynomials of Hibi rings, online talk in webinar Series: CATGT. August 2020. Video.
- Delivered three lectures on *Positive Characteristic Commutative Algebra*, Commutative Algebra Seminar, CMI, Chennai. January, 2020.
- Delivered two lectures on *Tate resolutions*, Commutative Algebra Seminar, CMI, Chennai. November, 2019.
- On h -Polynomials of Hibi rings, Research Seminar, CMI, Chennai. September, 2019.
- Delivered three lectures on *Homological Invariants of Modules*, Commutative Algebra Seminar, CMI, Chennai. April, 2019. Based on Prof. Srikanth Iyengar's lectures.
- Absolute Integral Closure In Positive Characteristic, Mates PhD Research Seminar, CMI, Chennai. March, 2017.

Teaching Assistantships

- Computational Commutative Algebra, NPTEL Online course. July-November, 2022. Course Instructor : Prof. Manoj Kummini.
- Computational Commutative Algebra, NPTEL Online course. July-November, 2021. Course Instructor : Prof. Manoj Kummini.
- Computational Commutative Algebra, NPTEL Online course. September-December, 2020. Course Instructor : Prof. Manoj Kummini.

- Algebra I, Chennai Mathematical Institute, Chennai, India. August-November, 2019.
Course Instructor : Prof. Purusottam Rath.
- Madhava Mathematics Competition Nurture Camp, *Invariant theory of finite groups*, CMI, Chennai, India. June 2019.
Course Instructor : Prof. Manoj Kummini.
- Homological algebra, Chennai Mathematical Institute, Chennai, India. January-April, 2019.
Course Instructor : Prof. Kumari Saloni.

Research visit

- Sabancı University, Tuzla, Turkey. August, 2022.
Host : Prof. Ayesha Asloob Qureshi.

Participation in Workshops/Conferences

- Conference on Commutative Algebra and Algebraic Geometry, IIT Hyderabad, India. February 2023.
- EMS Summer School on Combinatorial Commutative Algebra, Gebze Technical University, Istanbul, Turkey. August, 2022.
- A Conference on Topics in Algebraic Geometry and Commutative Algebra, SRM University-AP, Andhra Pradesh, India. July, 2022.
- NCM Workshop on *maximal Cohen-Macaulay Modules*, Chennai Mathematical Institute, Chennai, India. July, 2022.
- 4th BRICS Mathematics Conference, IISER Tiruvananthapuram, Kerala, India. December, 2021.
- AIS School on *advanced commutative algebra*, IIT Kharagpur, India. December, 2019.
- Workshop on Hochschild Homology, Chennai Mathematical Institute, Chennai, India. July, 2019.
- NCM Workshop *commutative algebra and algebraic geometry in positive characteristics*, IIT Bombay, Mumbai, India. December, 2018.
- Projective Modules, IIT Bombay, Mumbai, India. May-June, 2018.
- AIS School on *Gröbner Bases and their Applications*, IIIT Delhi, New Delhi, India. December, 2017.
- ATM Workshop on *positive Characteristic Methods in Commutative Algebra*, IIT Bombay, Mumbai, India. June, 2017.
- Workshop on Seshadri constants, Chennai Mathematical Institute, Chennai, India. February, 2017.
- AIS School on commutative Algebra, Chennai Mathematical Institute, Chennai, India. December, 2015.

Awards and Achievements

- August, 2018 – **Senior Research Fellowship.**
present Awarded by Chennai Mathematical Institute, Chennai, India.
- August, 2016 – **Junior Research Fellowship.**
July, 2018 Awarded by Chennai Mathematical Institute, Chennai, India.
- August, 2014 – **Postgraduate Scholarship.**
April, 2016 Awarded by Chennai Mathematical Institute, Chennai, India.
- 2016 **Selected for PhD in IISER Pune (didn't avail)..**

- 2016 **Qualified Graduate Aptitude Test in Engineering(GATE).**
Conducted by Indian Institute of Technology (IIT).
- December 2015 **73rd Rank in CSIR-JRF Dec-2015 Mathematical Science test.**
Conducted by CSIR-UGC for Junior Research Fellowship and eligibility for lectureship.
- December 2014 **44th Rank in CSIR-NET Dec-2014 Mathematical Science test.**
Conducted by CSIR-UGC for eligibility for lectureship.
- 2014 **62nd Rank in IIT – JAM 2014 Mathematics subject test.**
Conducted by Indian Institute of Technology (IIT) for Master's programme in Mathematics.
- 2004 – 2011 **Free Education and Accommodation From Class 6th to 12th.**
Awarded by HRD Ministry of India on the Basis of Aptitude Test.

Referees

Prof. Manoj Kummini; mkummini@cmi.ac.in

Prof. Ayesha Asloob Qureshi; ayesha.asloob@sabanciuniv.edu

Prof. Clare D'Cruz; clare@cmi.ac.in