

## Curriculum Vitae

# Hassain M

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NBHM Postdoctoral Fellow,  
Indian Statistical Institute, Bangalore Centre,  
Bangalore-211019.

### Email

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### Personal Informations

Date of Birth: 18-05-1992.

Sex: Male.

Nationality: Indian.

### Research Interests

Representation theory of finite groups.

### Area of Specialisation

Representation theory of general and special linear groups over compact discrete valuation rings.

### Education

- Integrated Ph.D. (dual M.Sc + Ph.D. degree) (Mathematics), Indian Institute of Science, Bangalore, India (August 2012-December 2019). CGPA: 7.0 (out of 8).
- B.Sc.(Mathematics), University of Calicut, Kerala, India (June 2009-May 2012). CGPA: 3.63 (out of 4).

### Work Experience

- NBHM Postdoctoral Fellow, Indian Statistical Institute, Bangalore Centre (1st July 2025-till date).
- Postdoctoral Fellow, Harish-Chandra Research Institute, Prayagraj(Allahabad) (30th June 2023-20th June 2025).
- Postdoctoral Fellow, The Institute of Mathematical Sciences, Chennai (8th April 2021-12th June 2023).
- Postdoctoral Fellow, Kerala School of Mathematics, Kozhikode, Kerala (15th December 2020-23rd March 2021).
- Research Associate, Indian Institute of Science, Bangalore (30th July 2019-29th July 2020).

### Awards and Scholarships

- NBHM Postdoctoral Fellowship, 2024.
- Prof. P L Bhatnagar Medal 2016, at Indian Institute of Science, Bangalore (for the best performance in course work in the Integrated Ph.D. programme).

- CSIR- Shyama Prasad Mukherjee Fellowship, 2016.
- UGC-CSIR Junior Research Fellowship, 2016.
- Qualified National Eligibility Test (NET) with All India Rank 3 in 2016.
- Qualified IIT-Joint Admission Test for M.Sc. (IIT JAM) with All India Rank 50 in 2012.

## Publications

- **Representation growth of compact special linear groups of degree two,**  
 (with Pooja Singla) Advances in Mathematics, Volume 396, Paper No. 108164, 61 pages, 2022, <https://doi.org/10.1016/j.aim.2021.108164>.
- **Construction of even-level representations of  $SL_2(\mathfrak{o})$  with residue field of characteristic two,**  
 Journal of Pure and Applied Algebra, Volume 228, Paper No. 107737, 24 pages, 2024, <https://doi.org/10.1016/j.jpaa.2024.107737>.
- **Branching rules for the restriction of regular representations of  $GL_2(\mathfrak{o}/\mathfrak{p}^r)$  to  $SL_2(\mathfrak{o}/\mathfrak{p}^r)$ ,**  
 Communications in Algebra, Volume 53(2), Pages 895-900, 2025, <https://doi.org/10.1080/00927872.2024.2393704>.
- **Tensor product of irreducible characters of  $GL_2(\mathbb{F}_q)$ ,**  
 (with Archita Gupta) Journal of Algebra and Its Applications, p.2650113, ISSN: 1793-6829, 10 pages, 2025, <https://doi.org/10.1142/S0219498826501136>.
- **On tensor products of regular characters of the general linear and unitary groups of degree two over the principal ideal local rings of finite length,**  
 (with Archita Gupta and Pooja Singla) arXiv preprint, 36 pages, 2025, <https://arxiv.org/abs/2511.01591>.

## Talks given

- “Branching rules and tensor product of representations of  $GL_2(\mathfrak{o}/\mathfrak{p}^r)$ ” at Harish-Chandra Research Institute, Prayagraj on May 31, 2024.
- “Representations of  $2 \times 2$  Special Linear Groups Over Compact Discrete Valuation Rings” at Harish-Chandra Research Institute, Prayagraj on July 25, 2023.
- “Introduction to Representation Theory of Finite Groups” at Harish-Chandra Research Institute, Prayagraj on July 24, 2023.
- “Representations of Compact Special Linear Groups of Degree Two” in ARC-SIN seminar series (organized jointly by IMSc, IISc and IIT Kanpur), on April 30, 2021.
- “Representations of compact special linear groups of order two: construction, representation growth and group algebras” at Kerala School of Mathematics, Kozhikode on November 24, 2020.

- “The field of  $p$ -adic numbers - an introduction” at Indian Institute of Science, Bangalore (Student’s seminar) on January 22, 2019.
- “Representation growth of special compact linear groups of order two” at Indian Institute of Science, Bangalore on January 4, 2019.
- “Representation growth of special compact linear groups of order two” at International Conference on Algebra, Combinatorics, and Representation Theory held at IISER, Thiruvananthapuram on December 5-8, 2018.
- “Irreducible representations of  $\mathrm{SL}_2$  over principal ideal local rings of even characteristic” at 83<sup>rd</sup> Annual Conference of the Indian Mathematical Society held at SVU, Tirupati on December 12-15, 2017.
- “Representation of finite groups - an introduction” at a National Seminar on Functional and Harmonic Analysis held at PSMO College, Thirurangadi, Kerala on March 16-18, 2016.
- “Representations and conjugacy classes of  $\mathrm{GL}_2(\mathbb{F}_q)$ ” at Indian Institute of Science, Bangalore (Student’s seminar) on January 27, 2015.
- “Representations and conjugacy classes of  $\mathrm{GL}_2(\mathbb{Z}/p^k\mathbb{Z})$ ” at Indian Institute of Science, Bangalore (Student’s seminar) on May 27, 2014.

### **Teaching Assistance**

- Geometry of Vision, NPTEL Online Certification course (August- September 2022).
- Advanced Instructional School on Representation Theory held at CMI, Chennai, 20th June - 9th July, 2022.
- Algebraic Combinatorics, NPTEL Online Certification course (January- March 2022).
- Our Mathematical senses Part1: Geometry of Vision, NPTEL Online Certification course (August- September 2021).
- MA-231: Topology, IISc, Bangalore (August- December 2017).
- UM-203: Elementary Algebra and Number Theory, IISc, Bangalore (January- April 2017).
- UM-202: Introduction to Basic Analysis, IISc, Bangalore (January- April 2016).
- UM-201: Probability and Statistics, IISc, Bangalore (August- December 2015).
- MA-219: Linear Algebra, IISc, Bangalore (August- December 2014).

### **Workshops/ Conferences Attended**

- Advanced Instructional School on Representation Theory held at CMI, Chennai, 20th June - 9th July, 2022.
- Workshop on Group Algebras, Representations and Computation held at ICTS, Bangalore, October 14-23, 2019.
- International Conference on Algebra, Combinatorics, and Representation Theory held at IISER, Thiruvananthapuram on December 5-8, 2018.

- 83<sup>rd</sup> Annual Conference of the Indian Mathematical Society held at SVU, Tirupati, December 12-15, 2017.
- Group theory and Computational Methods held at ICTS, Bangalore, November 05-14, 2016.
- NCM Workshop on Probability and Representation Theory held at IMSC, Chennai, March 7-12, 2016.
- Workshop on probability and representation theory, Department of Mathematics, IISc, Bangalore, March 6-7, 2015.