




Curriculum Vitae (CV)

Title	Dr.	First Name	Hemant	Last Name	Singh	Photograph
Designation	Associate Professor					
Address	Department of Mathematics, University of Delhi, Delhi					
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Educational Qualifications						
Degree	Institution				Year	
Ph.D.	University of Delhi				2010	
M.Sc.	I. I. T. Delhi				2000	
B.Sc.	V. B. S. Purvanchal University, UP				1997	
Career Profile						
<ol style="list-style-type: none">1. Associate Professor, Department of Mathematics, University of Delhi, Delhi (January 23, 2022 to till date)2. Assistant Professor, Department of Mathematics, University of Delhi, Delhi (January 22, 2014 (AN) to January 22, 2022)3. Assistant Professor, Department of Mathematics, Keshav Mahavidalaya, University of Delhi, Delhi (September 22, 2010 to January 22, 2014)						
Administrative/ Committees Assignments						
<ol style="list-style-type: none">1. Warden, D. S. Kothari Hostel, University of Delhi, Delhi w.e.f. 1st May, 2015 and till date.2. The Nodal Officer of the D. S. Kothari Hostel, University of Delhi for assessment and accreditation by NAAC, 2015.						

3. **Convener/ Members** of the (1) Internal Assessment Committee, (2) Admission Committee, (3) Data Analysis Committee, (4) Admission Committee, (5) North-East Committee, (6) NAAC/IQAC/Annual Report Committee, (7) Committee of Courses of Honours & Postgraduate, (8) Departmental Research Committee, (9) M.Phil Committee, (10) Under Graduate Examination Committee etc.
4. **Member** of the UG syllabus under UGCF-2022 in view of NEP implementation from the academic session 2022-2023.
5. **Coordinator** of the UG syllabus revision under Learning Outcomes- based Curriculum Framework (LOCF) in 2018-19. These syllabus were implemented from academic session 2019-20 in the University of Delhi.
6. **Member** of the PG syllabus revision under Learning Outcomes- based Curriculum Framework (LOCF) in 2018-19. This curricula and courses are implemented from academic session 2019-20 in the University of Delhi.
7. **Coordinator** of the Syllabus Revision Committee under CBCS-2018 for the B.Sc. (Honours) Mathematics, B.Sc Programme & B.Sc. Mathematical Sciences, B.A. Programme and GE/SEC Papers

Areas of Interest / Specialization

Algebraic Topology

Subjects Taught

1. **M. Phil.:** Singular Homology (Reading Course).
2. **Postgraduate Level:** Algebraic Topology, Topology, Module Theory, Field Theory, Advanced Group Theory, Differential Geometry.
3. **Undergraduate Level:** Linear Algebra, Abstract Algebra, Calculus, Real Analysis, Mechanics, Probability Theory.

Research Guidance

Supervision of Doctoral Thesis:

1. Konthoujam Somorjit Singh (2019), "Borsuk-Ulam type theorems and finite groups acting freely on spaces of cohomology type (a,b) "

Supervision of Doctoral Thesis, under progress:

1. Kumari, Anju (2018), "Some Problems in index of finitistics spaces and orbit spaces in Transformation Groups"
2. Dimpi (2019), "Some Problems in fixed point sets and orbit spaces in Transformation Groups"

3. Akhilesh Badra (2022), "Some Problems in Computational Topology with Applications in Computer Science"

Supervision of M. Phil. Thesis:

1. Kumari, Anju (2017), "Group actions on projective spaces and their products"
2. Garg, Sourabh (2017), "Different versions of Borsuk-Ulam theorem and Borsuk-Ulam property of a space"
3. Kumar, Gaurav (2019), "Free involutions and equivariant maps"
4. Dimpi (2019), "Finite group actions on spheres and the product of spheres"

Supervision of M. Phil. Thesis under progress:

1. Pratham Singh (2022), "Computational Topology"

Publication Profile:

1. Hemant Kumar Singh (with Anju Kumari), Fixed Point Free Actions of Spheres and Equivariant Maps, *Topol Appl.* 305, 107886, **2022**.
2. Hemant Kumar Singh (with Anju Kumari), Cohomology classification of spaces with free S^1 and S^3 -actions, Accepted for publication in *Filomat* (**April 2022**).
3. Hemant Kumar Singh (with Somorjit K. Singh), Borsuk-Ulam type theorem for multivalued maps- Accepted for publication in *Hiroshima Mathematical Journal* (**December 2021**).
4. Hemant Kumar Singh (with Somorjit K. Singh), Indices of a Finitistic Space with mod 2 cohomology $\mathbb{R}P^n \times S^2$, *Indian Journal of Pure of Applied Mathematics*, 50(1), 23-34, **2019**.
5. Hemant Kumar Singh (with Somorjit K. Singh), Parametrized Borsuk-Ulam theorems for free involutions on $FP^m \times S^3$, *Topology and its Applications*, 241, 20-37, **2018**.
6. Hemant Kumar Singh (with Somorjit K. Singh and Tej B. Singh), Borsuk-Ulam Theorems and Their Parametrized for $FP^m \times S^3$, *Bulletin of Brazilian Mathematical Society (New Series)*, 49, 179-197, **2018**.
7. Hemant Kumar Singh (with Somorjit K. Singh and Tej B. Singh), Free Actions of Finite Groups on Spaces of Cohomology Type $(0,b)$, *Glasgow Mathematical Journal*, 60 (3), 673-680, **2018**
8. Hemant Kumar Singh (with Somorjit K. Singh and Tej B. Singh), The Set of Balanced Points of Maps on Cohomology Lens Spaces, *Houston Journal of Mathematics*, 44 (3), 1051-1061, **2018**.
9. Hemant Kumar Singh (with Somorjit K. Singh and Tej B. Singh), A Borsuk-Ulam type theorem for the product of projective space and 3-sphere,

Topology and its Applications, 225, 112-129, **2017**.

10. Hemant Kumar Singh (with Jaspreet Kaur and Tej B. Singh), Circle group action on the product of two projective spaces, *Topology Proceedings*, 48, 163-172, **2016**.
11. Hemant Kumar Singh (with Jaspreet Kaur), On the existence of free action of S^3 on certain finitistic mod p cohomology spaces, *J. Indian Math. Soc.* 82(3-4), 97-106, **2015**.
- 12.** Hemant Kumar Singh (with Tej B. Singh), The Cohomology of Orbit Spaces of Certain Free Circle Group actions, *Proceedings of the Indian Academy of Sciences-Mathematical Sciences*, 122(1), 79-86, **2012**.
- 13.** Hemant Kumar Singh (with Pedro L. Q. Pergher and Tej B. Singh), On Z_2 and S^1 Free Actions on Spaces of Cohomology type (a, b) , *Houston Journal of Mathematics*, 36(1), 137-146, **2010**.
14. Hemant Kumar Singh (with Tej B. Singh), Fixed Point Free Involutions on Cohomology Projective Spaces, *Indian Journal of Pure of Applied Mathematics*, 39(3), 285-291, **2008**.
15. Hemant Kumar Singh (with Tej B. Singh), On the Cohomology of Orbit Spaces of Free Z_p -Actions on Lens Spaces, *Proceedings of the Indian Academy of Sciences-Mathematical Sciences*, 117(3), 287-292, **2007**.

Conference Organization/ Presentations:

RESOURCE PERSONS

1. Delivered series of six lectures in "**Workshop on Sheaf Theory, Sheaf Cohomology and Spectral Sequences**" sponsored by National Center for Mathematics (NCM) (A joint center of TIFR and IIT Bombay) held at Department of Mathematics, University of Delhi, Delhi November 18-30, 2019.
2. Delivered series of six lectures in "**Advanced Instructional School on Differential Topology**" sponsored National Center for Mathematics (NCM) (A joint center of TIFR and IIT Bombay) held at North Eastern Hill University, Shillong during July 2-21, 2018.

INVITED TALK

1. Delivered a talk entitled "**Group Actions on Spaces of Cohomology Type $(0,b)$** " in the International Conference on Mathematics and Applications

organised by Department of Mathematics and Statistics, Ramjas College, University of Delhi during 26-28 April, 2017.

2. Delivered a talk entitled "**Finite Group Actions on Spaces of Cohomology Type $S^n \times S^{2n}$ and $S^n \vee S^{2n} \vee S^{3n}$** " in a symposium of the 82nd annual conference of THE INDIAN MATHEMATICAL SOCIETY or organised by Department of Mathematics, University of Kalyani, Kalyani, West Bengal during 27-30 December, 2016.
3. Delivered a talk entitled "**Action of Sphere Groups on Certain Spaces**" in the National Workshop on Analysis, Differential Equations and Applications (NWADA-2016) organised by Department of Mathematics and Statistics, Mohanlal Sukhadia University during 25-27 February, 2016.

CONTRIBUTED TALK

4. Delivered a talk entitled "**On S^0 , S^1 and S^3 actions on Spheres, Projective spaces, Lens spaces and Spaces of type (a,b)** " in the 30th Annual Conference of Ramanujan Mathematical Society at Indian Institute of Science Education and Research, Mohali during 15-17 May, 2015.
5. Delivered a talk entitled "**On the Orbit Spaces of Certain Transformation Groups**" in the Topology Discussion Meeting- 2013, at The Institute of Mathematical Sciences, Chennai during 2-4 May, 2013.

CONFERENCE/WEBINAR/REFRESHER COURSE ORGANIZATION:

National Centre for Mathematics (NCM) Workshops

1. **Organized** two week National Center for Mathematics Workshop (NCMW) on "Sheaf Theory, Sheaf Cohomology and Spectral Sequences" held at the Department of Mathematics, University of Delhi during November 18-30, 2019.
2. **Organized** two week National Center for Mathematics Workshop (NCMW) on "Topology of Manifolds and Group Actions" held during November 9-22, 2017.

International/National Conference

3. **Convener** of the International Conference on "Topology and Geometry" on the occasion of the retirement of Professor Tej Bajadur Singh (sponsored by the Science and Engineering Research Board, Department of Science and Technology and the University of Delhi) held during November 23-24, 2017.
4. **Organized** "33rd Annual Conference of the Ramanujan Mathematical Society" held at the Department of Mathematics, University of Delhi during June 1-3, 2018.

Refresher Course and Faculty Development Programs

5. **Convener** of online Workshop on "MOOCs, E-content Development and Open

Educational Resources" at the Centre for Professional Development in Higher Education (CPDHE), UGC-HRDC, University of Delhi, Delhi during 15th December 2021 –21st December 2021.

6. **Co-coordinator** of online Refresher Course in Mathematics/ Operational Research/ Statistics and Computer Science at Centre for Professional Development in Higher Education (CPDHE), UGC-HRDC, University of Delhi, Delhi during October 4-18, 2021.
7. **Co-Convener** of the Refresher Course in Mathematics/ Operational Research/ Statistics and Computer Science at Centre for Professional Development in Higher Education (CPDHE), UGC-HRDC, University of Delhi, Delhi during May 31- June 14, 2019.

Webinars and Other Conferences

8. **Coordinator** of online webinar on "Life and glimpses into the work of Srinivasa Ramanujan" on the occasion of National Mathematics Day at the Department of Mathematics, University of Delhi on December 22, 2021.
9. **Coordinator** of online webinar on "Tautological rings for smooth manifolds" at the Department of Mathematics, University of Delhi held on November 30, 2021.
10. **Coordinator** of online webinar on "Constitution of India: Rationale and Relevance" to celebrate 75th Years of India's Independence-Azadi Ka Amrut Mahotsava on the occasion of Samvidhan Diwas (Constitution Day) at the Department of Mathematics, University of Delhi held on November 26, 2021.
11. **Coordinator** of online webinar on "Academic Ethics and the Challenges" on the occasion of Vigilance Awareness Week-2021 on the theme Independent India @ 75: Self reliance with Integrity at the Department of Mathematics, University of Delhi held on November 10, 2021.
12. **Coordinator** of online webinar on the occasion of International Yoga Day organized by the Faculty of Mathematical Sciences, University of Delhi held on June 21, 2021.
13. **Coordinator** of Symposium on "Topology and Geometry" in 33rd Annual Conference of the Ramanujan Mathematical Society held at the Department of Mathematics, University of Delhi during June 1-3, 2018.
14. **Organized** Research Scholar's Seminar & Annual Conference of the Society of Mathematical Sciences (Delhi) at the Department of Mathematics, University of Delhi during 1-2 May, 2017.
15. **Organized** Research Scholar's Seminar at the Department of Mathematics, University of Delhi during 23-24 February, 2015.

Research Projects (Major Grants/Research Collaboration)

1. Grant of **Rs 1,50,000** (One Lacs Fifty Thousand Only) of the minor research grant under Faculty Research Programme (FRP) of the IoE scheme 2021-22 of University of Delhi.
2. Sanctioned grant of **Rs 17,51,970/-** (Seventeen Lacs Fifty One Thousand Nine Hundred and Seventy Only) under EMR Scheme of Science & Engineering Research Board (Department of Science & Technology, government of India)- (File No.: **EMR/2017/002192** dated **September 6, 2018**).
3. Sanctioned grant of **Rs 6,60,000/-** (Six Lacs Sixty Thousand Only) under Mathematical Research Impact-Centric Support (MATRICS) Scheme of Science and Engineering Research Board (SERB), Department of Science and Technology, Government of India (File No.: **MTR/2017/000386** dated **June 21, 2018**).
4. Grant of **Rs 1,40,000** (One Lacs Forty Thousand Only) under **R & D scheme** 2015-16 of the University of Delhi.

Awards and Distinctions:

1. CSIR-UGC (NET + JRF) Qualified in Mathematical Sciences, 2000.
2. GATE-2000 Qualified in Mathematics (Percentile:96.02, All India Rank:30)

Association With Professional Bodies:

LIFE MEMBERS OF

1. THE INDIAN MATHEMATICAL SOCIETY (S-11-379).
2. THE INDIAN SCIENCE CONGRESS ASSOCIATION (L-18806).
3. RAMANUJAN MATHEMATICAL SOCIETY (879).

ANNUAL/INDIVIDUAL MEMBER OF

AMERICAN MATHEMATICAL SOCIETY (Member ID:SNHMKA).

Other Activities:

1. Attended online "**Refresher Course**" on Mathematics/ Operational Research/ Statistics and Computer Science on the theme 'From Zero to Infinity: A Journey of Knowledge (शून्य से अनन्त : यात्रा ज्ञान की)' held at the *Centre for Professional development in Higher Education, University of Delhi, Delhi* from December 2-15, 2020.
2. Attended UGC-Sponsored "**Refresher Course**" in Mathematical Sciences (Maths/Stats/OR/Computer) held at Centre for Professional development in Higher Education, University of Delhi, Delhi during 26th November, 2015 to 16th December, 2015.

3. Attended UGC-Sponsored "**Refresher Course**" in Mathematical Sciences (Maths/Stats/OR/Computer) held at *Centre for Professional development in Higher Education, University of Delhi, Delhi* during 24th November, 2014 to 13th December, 2014.
4. Attended the international workshop and conference entitled "**Teichmuller Theory and Interfaces with Ergodic Theory and Group Actions**" held at *School of Physical Sciences, Jawaharlal Nehru University, New Delhi* during October 28 to November 1, 2013.
5. Attended 99th four week UGC sponsored "**Orientation Programme**" at *Academic Staff College, Jamia Millia Islamia, New Delhi* during 18th January to 17th February, 2012.
6. Attended the international conference on "**The Legacy of Srinivasa Ramanujan**" held at *University of Delhi, Delhi* during 17-22 December, 2012.
7. Attended International Workshop on "**Wavelets, Frames and Applications**" held at Kirori Mal College, University of Delhi during 15-21 December, 2011.
8. Attended International Congress of Mathematicians 2010 held at the University of Hyderabad during 19-27 August, 2010.
9. Attended Advanced Training in Mathematics for Lecturers(**ATML**) in Real Analysis at the Department of Mathematics, University of Delhi, Delhi during March 22 to April 3, 2010.
10. Attended a National Seminar on "**Global Economic Challenges: Implications for India**" held at ILL North Campus, University of Delhi on 4-5 February, 2010.
11. Attended "A National Meet on History of Mathematical Sciences" at the Department of Mathematics, University of Delhi, Delhi during January 7-9, 2010.
12. Attended "Advanced Training in Mathematics for Lecturers(**ATML**)" in Complex Analysis with Modern Perspectives at the Department of Mathematics, University of Delhi, Delhi during March 16 to April 4, 2009.
13. Attended International Conference on "**Operator Theory and Related Areas**" at the Department of Mathematics, University of Delhi, Delhi during January 9-12, 2008.

14. Attended National Workshop on Analysis at the Department of Mathematics, University of Delhi, Delhi during September 27-28, 2007.
15. Attended National Symposium on "**Functional Analysis, Optimization and Their Applications**" at the Deen Dayal Upadhyaya college, University of Delhi, Delhi during January 19-20, 2007.
16. Attended Instructional Workshop on "**Fractal Geometry and Non-Linear Dynamical Systems**" at the Department of Mathematics, University of Delhi, Delhi during October 4-8, 2004.
17. Attended Workshop on "**Topological Methods in Group Theory**" at The Institute of Mathematical Science, Chennai during July 15-27, 2002.
18. Attended International Conference on "**Algebraic and Geometric Topology**" at the Department of Mathematics, University of Delhi, Delhi during January 14, 2002.



Signature of Faculty Member