
DR. SAHANA H. BALASUBRAMANYA

Webpage : <http://hbsahana.com/math/index.htm>

PERSONAL INFORMATION

Date of Birth: 16 October, 1989

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APPOINTMENTS

- 2022– *Visiting Assistant Professor*, Department of Mathematics
State University of New York at Buffalo, USA
Mentors: Dr.Johanna Mangahas
- 2019–22 *Postdoctoral Research Associate*, Cluster of Excellence
Westfälische Wilhelms- Universität Münster, Germany
Mentor: Dr.Katrin Tent
- 2018–19 *Visiting Assistant Professor*, Department of Mathematics
The University of North Carolina at Greensboro, USA
Mentor: Dr.Talia Fernós

EDUCATION

- 2013–18 *Ph.D. Mathematics*, Vanderbilt University, Nashville, TN, USA
Thesis advisor: Dr. Denis Osin
Thesis title : Hyperbolic structures on groups
- 2013–15 *Master of Science Mathematics*, Vanderbilt University, Nashville, TN, USA
- 2010–12 *M.A. Mathematics*, Lady Shri Ram College for Women, University of Delhi, New Delhi, India
Result: First Division with Distinction
- 2007–10 *B.A. Mathematics*, Lady Shri Ram College for Women, University of Delhi, New Delhi, India
Result: First Division with Distinction

RESEARCH AREAS

- *Geometric group theory*: Constructing, studying and classifying (isometric) group actions on hyperbolic spaces, actions on products of hyperbolic spaces, quasi-parabolic actions, acylindrical actions and acylindrically hyperbolic groups
- *Model theory*: First order theory of countable graphs, first order rigidity
- *Applications of mathematics to economic theory*: Ground water conservation, Impact assessment

ACADEMIC AWARDS & HONORS

- 2021 Selected for the ‘Erstklassig!’ mentoring program for postdoctoral researchers, University of Münster
Mentor: Dr.Ursula Hamenstädt, University of Bonn
- 2020 Awarded Oberwolfach Leibniz Graduate (OWLG) Travel Grant, MFO
- 2018 B.F. Bryant Prize for Excellence in Teaching, Department of Mathematics, Vanderbilt University
- 2017 Awarded Graduate student travel grant by the Graduate school, Vanderbilt University
- 2016 Awarded Graduate student travel grant by the Graduate school, Vanderbilt University
- 2015 Awarded Graduate student travel grant by the Graduate school, Vanderbilt University
- 2012 Highest scorer in University of Delhi, South Campus for M.A.Mathematics, University of Delhi
- 2012 Best Student in Mathematics, Semesters III & IV for M.A. Mathematics, University of Delhi
- 2011 South Campus Endowment Scholarship for academic excellence, University of Delhi
- 2011 Best Student in Mathematics, Semesters I & II for M.A. Mathematics, South Campus, University of Delhi
- 2010 Scored among top 1% of students in B.A. Mathematics, University of Delhi
- 2009 Anupama Dua Scholarship for excellence in B.A. Mathematics, Lady Shri Ram College, University of Delhi

PUBLICATIONS

- S.Balasubramanya, F.Francesco, A.Genevois; Property (NL) for hyperbolic group actions; *In preparation*.
- C.Abbott, S. Balasubramanya, A.J.Rasmussen; Valuations, completions and hyperbolic actions of metabelian groups, with Appendix A co-authored with S.Payne; arXiv:2207.12945 (2022, 67 pgs).
- C.Abbott, S. Balasubramanya, A.J.Rasmussen; Higher rank confining subsets and actions of solvable groups, arXiv:2108.08175 (2021, 34 pgs, Submitted).

- S. H Balasubramanya; Finite extensions of \mathcal{H} - and \mathcal{AH} -accessible groups, *Topology Proceedings* Volume 56 (2020), pg 297-304 .
- S. H Balasubramanya; Hyperbolic structures on wreath products, *Journal of Group Theory* (2019), ISSN (Print) pg 1433-5883.
- C. Abbott, S. Balasubramanya, D. Osin; Hyperbolic structures on groups, *Algebraic & Geometric Topology* 19-4 (2019), pg 1747-1835.
- S. H Balasubramanya; Acylindrical group actions on quasi-trees, *Algebraic & Geometric Topology* 17 (2017) pg 2145 - 2176.

APPLIED MATH PAPERS (ECONOMIC THEORY)

- S. Balasubramanya, S. Balasubramanya, A.Mitra; Positive incentives for ground water, *In preparation*.
- (Assisted with) S. Balasubramanya, J. Price, T. Horbulyk; Impact assessments without true baselines: assessing the relative effects of training on the performance of water user associations in Southern Tajikistan. *Water Economics and Policy* (2017), 4(3), pp. 1850007.

LANGUAGES

- Programming languages: R, LaTeX, C++, Qbasic, FORTRAN
- Fluent in English and Hindi, German (B1 level)

TEACHING EXPERIENCE

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| <i>SUNY Buffalo</i> | Fall 2022 : Instructor, Survey Calculus and Applications I (2 sections); supervised 2 TA's and 1 grader |
| <i>Summer Schools</i> | May 2022 : Instructor, Introductory course on hyperbolic groups and boundaries ICMAT (Ian Agol Lab), Spain |
| | June 2020 : Instructor, Mini-course on Acylindrically and Relatively hyperbolic groups, Geometric group theory without boundaries II |
| <i>University of Münster</i> | Fall 2021 : Teaching Assistant, Geometric Group Theory II |
| <i>UNC Greensboro</i> | Spring 2019 : Instructor, Calculus I (1 section), Calculus II (2 sections); supervised 2 graders |
| | Fall 2018 : Instructor, Pre-Calculus (2 sections), Calculus I (1 section); supervised 1 grader |
| <i>Vanderbilt University</i> | Spring 2018 : Instructor, Calculus 1301; supervised 1 TA |
| | Spring 2017 : Teaching Assistant, Calculus 1301 |
| | Fall 2016 : Instructor, Calculus 1200; supervised 1 TA |
| | Spring 2016: Teaching Assistant, Calculus 1301 |
| | Fall 2015: Instructor, Statistics Laboratory |
| | Spring 2015: Teaching Assistant, Probability and Statistics |
| | Fall 2014: Teaching Assistant, Calculus 1200 |
| | Spring 2014: Teaching Assistant, Linear Algebra |
| | Fall 2013: Grader, Calculus 1301 |

SERVICE-LEADERSHIP-TEAM EXPERIENCE

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| <i>Conference organizer</i> | ◦ NCNGT, Topics group on 'Group actions on hyperbolic metric spaces', September 2022 |
| <i>Project Leader</i> | ◦ Projection complexes and course cubulations (with J. Mangahas)
Women in Groups, Geometry and Dynamics (WiGGD) Workshop, July 2023 |
| <i>Served as a Referee</i> | ◦ Michigan Math Journal
◦ Journal of Topology and Analysis |
| <i>University of Münster</i> | ◦ Mentor, MINT mentoring program for women in math (Masters students), Spring 2022
◦ Member, Task force to help mathematicians from Ukraine, Spring 2022
◦ Organizer, GGT Seminar, Spring 2022
◦ Member, W2 Appointment Committee, Dept. of Mathematics, 2021
◦ Organizer, MM Buddy Program, 2020
◦ Organizer, MM Connect sessions, 2020 -2021
◦ Organizer, Welcome Center Event meets MM, 2020
◦ Talk on 'Preparing for the academic postdoctoral job market', MMGS Retreat 2020
◦ Organizer, MMGS Retreat for PhD students, 2020- present
◦ MM Impulse talk on postdoctoral job market preparation in academia, 2019 |
| <i>UNC Greensboro</i> | ◦ Academic career panel member, AWM conference, Wake Forest University, 2019
◦ House calls Volunteer, Housing and Residence Living, 2018
◦ Chair, Diversity Committee, Department of Mathematics and Statistics, 2018-19 |

- Organizer, Ping-Pong seminar between UNCG and Wake Forest University, 2018–19
- Member, State Math Contest Committee, Department of Mathematics and Statistics, 2018
- Vanderbilt University*
 - Vanderbilt Global Ambassador, 2013–18
 - Graduate student teaching assistant panel member, 2016–18
 - Instructor in Bharatanatyam, Vanderbilt Dance Program, 2014–18
 - Helped organize several conferences, 2013–18
- University of Delhi*
 - Talk on 'Career prospects in Mathematics', Lady Sri Ram College, 2021
 - Organized several seminars at Department of Mathematics, 2007–12
 - Editorial Board, 'Quantum- A Mathematical Gazette', Lady Shri Ram College, 2008–10

LIST OF TALKS (SEMINARS & CONFERENCES)

- 2022
 - World of GroupCraft, (*Invited, Virtual*)
 - Group theory seminar, ETH Zürich
 - Groups in Galway meets the Irish Geometry Conference, National University of Ireland, (*Invited, Virtual*)
 - Group theory seminar, SUNY Buffalo, USA (*Virtual*)
- 2021
 - Geometric Group Theory Seminar, WWU Münster, Germany
 - Geometry and Analysis on Groups Research Seminar, University of Vienna, Austria (*Invited*)
 - Algebra, Geometry and Topology seminar, Universidad Madrid, Spain (*Invited*)
 - Geometric Group Theory in East Asia, GGTea webinar (*Invited, Virtual*)
 - Geometry and Topology seminar, CUNY, USA (*Invited, Virtual*)
 - Geometry and Topology seminar, Rice University, USA (*Invited, Virtual*)
 - Post Graduate Topology Conference, University of Southampton, UK (*Invited, Virtual*)
- 2020
 - Advanced seminar on Model Theory and Groups, WWU Münster, Germany
 - Geometric Structures in Group Theory workshop, MFO Oberwolfach, Germany (*Invited, Virtual*)
 - Geometric Group Theory conference, CIRM, Luminy France (*Invited*)
 - Lightning talk, YGGT IX, Saint Jacut-de-la-mer, France
- 2019
 - Advanced seminar on Model Theory and Groups, WWU Münster, Germany
 - Geometric Group Theory Seminar, WWU Münster, Germany
 - WWU Münster Mathematics department colloquium “Meet the postdocs”, Germany
 - Spring Topology and Dynamics Conference, University of Alabama at Birmingham, USA (*Invited*)
 - Seminar talk, Spelman College, USA (*Invited*)
 - Geometry Seminar, University of Virginia, USA (*Invited*)
 - Seminar talk, Furman University, USA (*Invited*)
 - Topology and Geometric Group Theory Seminar, Cornell University, USA (*Invited*)
 - Group Theory and Topology seminar, Vanderbilt University, USA (*Invited*)
- 2018
 - Lightning Talk, TechTopology Conference, Georgia Tech University, USA
 - AMS Sectional meeting, University of Arkansas, USA (*Invited*)
 - Geometry–Topology seminar, Duke University, USA (*Invited*)
 - GANTC (Geometry, Algebra, Number Theory and Combinatorics) seminar, UNC Greensboro, USA
 - WINRS symposium - Mid Atlantic Region, University of Virginia, USA (*Invited*)
 - Summer Conference on Topology and its Applications, Western Kentucky University, USA (*Invited*)
 - AMS Sectional Meeting, Vanderbilt University, USA (*Invited*)
 - Colloquium Series, Gettysburg College, USA (*Invited*)
 - AMS Special Session on Boundaries for Groups and Spaces, Joint Mathematics Meeting, USA (*Invited*)
 - AMS Contributed Paper Session on Groups, Joint Mathematics Meeting, USA
- 2017
 - Geometric Group Theory seminar, Ohio State University, USA (*Invited*)
 - Algebra seminar, Loyola University, USA (*Invited*)
 - Geometry and Topology seminar, Graduate Centre, CUNY, USA (*Invited*)
 - Wasatch Topology Conference, Utah, USA (*Invited*)
 - yGAGTA Conference, Spain
 - Research Seminar, Women and Math program, IAS, Princeton, USA (*Invited*)
 - 51st Spring Topology and Dynamics Conference, New Jersey City University, USA (*Invited*)
 - Geometric group theory on the gulf (G^3) conference, Florida, USA (*Invited*)
 - Group theory and Topology seminar, Vanderbilt University, USA
- 2016
 - Group theory and Topology seminar, Vanderbilt University, USA
 - Poster presentation, YGGT V, KIT, Karlsruhe, Germany

SUMMER SCHOOLS, WORKSHOPS & CONFERENCES ATTENDED

- 2022
 - Lean for the curious mathematician, ICERM (*Virtual*)
 - Hyperbolic groups and their generalizations, IHP, Paris, France
- 2021
 - Buildings Conference, Universität Magdeburg, Germany
 - Counting Problems, Ventotene, Italy
 - YGGT X, Newcastle University (*Virtual*)
 - Modern Leadership is Female, WWU, Germany
- 2020
 - Topology Postdoc Workshop, Georgia Tech, USA
 - BiMs Seminar, Bielefeld Universität, Germany
- 2019
 - Miniworkshop - Geometric Group Theory, LMU, Germany
- 2017
 - GAGTA, Spain
- 2016
 - ‘Beyond Hyperbolicity’, Cambridge University, UK
 - Shanks workshop on Geometric Group Theory, Vanderbilt University, USA
- 2015
 - Summer school at EPFL -CIB: Probability on graphs and random walks, Switzerland
 - MSRI Geometric Group Theory Summer Graduate School, MSRI Berkeley, USA