
DR. SAHANA H. BALASUBRAMANYA

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

PERSONAL INFORMATION

Date of Birth: 16 October, 1989

Address: Bahnhofstraße 47, WE 1.17, Münster 48143, Germany

Email: hbsahana@gmail.com ; shassanb@uni-muenster.de

APPOINTMENTS

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

- C.Abbott, S. Balasubramanya, A.J.Rasmussen; Valuations, completions and hyperbolic actions of metabelian groups, *In preparation*.
- C.Abbott, S. Balasubramanya, S.Payne, A.J.Rasmussen; Appendix to Valuations, completions and hyperbolic actions of metabelian groups, *In preparation*.
- C.Abbott, S. Balasubramanya, A.J.Rasmussen; Higher rank confining subsets and actions of solvable groups, arXiv:2108.08175 (2021, 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) 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>Summer Schools</i> | May 2022 : Instructor, Introductory course on hyperbolic groups, ICMAT, Spain
June 2020 : Instructor, Mini-course on Acylindrically and Relatively hyperbolic groups
Geometric group theory without boundaries |
| <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)
Fall 2018 : Instructor, Pre-Calculus (2 sections), Calculus I (1 section) |
| <i>Vanderbilt University</i> | Spring 2018 : Instructor, Calculus 1301
Spring 2017 : Teaching Assistant, Calculus 1301
Fall 2016 : Instructor, Calculus 1200
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>Served as a Referee</i> | ◦ Michigan Math Journal
◦ Journal of Topology and Analysis |
| <i>University of Münster</i> | ◦ Mentor, 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 – <i>present</i>
◦ 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– <i>present</i>
◦ 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

- 2022 ◦ 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

- 2021
 - Buildings Conference, Madgeburg, 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
 - LMU Miniworkshop - Geometric Group Theory, München, 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