

Subhadip CHOWDHURY

Department of Mathematics
The University of Chicago
5734 S. University Ave.
Chicago, IL – 60637, USA



+1(773)490-5763

subhadip@math.uchicago.edu
math.uchicago.edu/~subhadip

PERSONAL INFORMATION

Date of Birth	27 May, 1992
Citizenship	India

RESEARCH INTERESTS

Topological and Dynamical properties of Group of homeomorphisms of Circle and related problems in low dimensional Dynamics, Geometry, Topology and Geometric Group Theory.

EDUCATION

2012–Present	Ph.D. in Mathematics <i>The University of Chicago, USA. Advisor - Danny CALEGARI</i>
2014	M.S. in Mathematics <i>The University of Chicago, USA</i>
2009–2012	Bachelor of Mathematics <i>Indian Statistical Institute, Bangalore Centre, India</i>

PUBLICATIONS AND PREPRINTS

- **Ziggurat fringes are self-similar.** *Ergodic Theory and Dynamical Systems*, doi:10.1017/etds.2015.75.

In this paper, we give explicit formulae for fringe lengths of the Calegari-Walker Ziggurats – i.e. graphs of extremal rotation numbers associated to positive words in free groups. These formulae reveal (partial) integral projective self-similarity in ziggurat fringes, which are low-dimensional projections of characteristic polyhedra on the bounded cohomology of free groups. This explains phenomena observed experimentally by Gordenko and Calegari-Walker.

- **A Topological proof that O_2 is 2-MCFL.** <https://arxiv.org/abs/1710.04597>

In this paper, we give a new proof of Salvati's theorem that the group language O_2 is 2 multiple context free using homology theory. Unlike Salvati's proof, our arguments do not use any idea specific to two-dimensions. This raises the possibility that the argument might generalize to O_n .

TEACHING EXPERIENCE

2014-2017	University of Chicago College Lecturer Mathematical Methods for Social Sciences, Math 195 (Fall 2017) Linear Algebra, Math 196 (Summer 2017) Calculus II, Math 152 (Fall 2016), ___ III, Math 153 (Winter 2017) Calculus II, Math 152 (Fall 2015), ___ III, Math 153 (Winter 2016), Elementary Functions and Calculus III, Math 133 (Spring 2016)
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	Calculus I, Math 151 (Fall 2014), __ II, Math 152 (Winter 2015), __ III, Math 153 (Spring 2015)
2013-2014	University of Chicago College Fellow Teaching Assistant for Honors Calculus I-III, Math 161-163 taught by Eugenia CHENG
2014,2016	Mentor for Research Experience for Undergraduates, University of Chicago Advised expository papers written by undergraduate students Scissors congruence, Rationality of zeta functions over finite fields, Canonical energy and black hole stability (2016); An introduction to knot theory and the knot group, The Jordan-Chevalley decomposition (2014).
2014-2016	Directed Reading Program Mentor, University of Chicago Met weekly with undergraduate students to guide a mathematics reading project <i>Topology</i> with Dan Su (Winter 2016), <i>The dynamics of Circle Homeomorphisms</i> with Wenyu Chen (Fall 2015), <i>Discrete Group actions on Topological Spaces</i> with Weston Ungemach (Spring 2014).
2013-2017	Grader for University of Chicago First year graduate courses Riemannian Geometry taught by André NEVES (Spring 2017) Differential Topology taught by Danny CALEGARI (Winter 2016) Differential Geometry taught by Sidney WEBSTER (Winter 2015) Algebraic Topology taught by Danny CALEGARI (Fall 2013)
2010-2011	Instructor in Regional Mathematical Olympiad and Indian National Mathematical Olympiad Training Camp in West Bengal and Karnataka, India

INVITED TALKS

December 2016	<i>Canadian Mathematical Society Winter Meeting, ON, Canada</i>
September 2017	<i>American Mathematical Society Fall Eastern Sectional Meeting, SUNY, Buffalo, USA</i>

OTHER SERVICE

2015	Judge, QED Young Math Symposium , Math Circles of Chicago Chicago's only youth math symposium
2015-2017	Volunteered and led a team of graduate students to place incoming Freshmen students via the University of Chicago College Calculus Accreditation Exam under supervision of Jitka STEHNOVA and John BOLLER
2014-2016	Active member and Webmaster for the UChicago chapter of Association for Women in Mathematics

AWARDS AND SCHOLARSHIPS

2012-2013	McCormick Fellowship , University of Chicago Awarded by the Admissions Committee to a small number of highly rated applicants to the Ph.D. program of the Department of Mathematics, for an amount of \$ 9000 over two years.
2012	S.H. Aravind Gold Medal , Indian Statistical Institute

	Awarded for outstanding performance in B.Math, to the student with highest CGPA in the program.
2011	Summer Reaserch Fellowship , Indian Academy of Science
2009	Bronze medal, 50th International Mathematical Olympiad , Germany
2009	National Board of Higher Mathematics scholarship , Department of Atomic Energy, Government of India
2008	Kishore Vaigyanik Protsahan Yojana fellowship , Department of Science and Technology, Government of India
2007	National Talent Search Examination scholarship , National Council of Education Research and Training, India

SKILLS AND LANGUAGES

Technical	Mathematica, C, Python, Bash, Haskell, SQL, PHP, HTML, CSS, \LaTeX
Language	English, Bengali, and Hindi - fully proficient in speaking, reading, and writing