

SIMRAN TINANI

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Winterthurerstrasse 190, 8057 Zürich

PERSONAL DETAILS

PLACE OF BIRTH: Bangalore, India
DATE OF BIRTH: 15 August 1995
CITIZENSHIP: Indian

RESEARCH INTERESTS

Applied Algebra, Nonabelian and Group-based Cryptography, Finite Field theory and applications, Number Theory

EDUCATION

PhD student/Teaching Assistant in MATHEMATICS 2019-PRESENT
University of Zürich, Switzerland
Advisor: Prof. Joachim Rosenthal

BS-MS dual degree in MATHEMATICS, 2013-2018
Indian Institute of Science Education and Research (IISER) Mohali
CUMULATIVE PERFORMANCE INDEX of 9.8/10.0 *cum laude*
Master's thesis title: *A Study of Quadratic Number Fields*,
Advisor: Prof. Kapil Paranjape

High School (Class 11 and 12, C.B.S.E.), Delhi Public School, Faridabad. 2011-2013
Aggregate 96/100 *cum laude*.

POSITIONS HELD

Doctoral Fellow 2021-PRESENT
Cyber Defence Campus (CYD), armasuisse, Switzerland
Project Title: Nonabelian Groups in Cryptography

PhD student/Teaching assistant in MATHEMATICS 2019-PRESENT
University of Zürich, Switzerland
Advisor: Prof. Joachim Rosenthal

Data Scientist, Hashbrown Systems, Punjab, India 2018-2019
Research on the mathematics of machine learning models,
Development of practical artificial intelligence models
Development of automated stock trading models,
Mathematical modelling of business problems.

PUBLICATIONS

1. Gianira Alfarano, Karan Khathuria, Simran Tinani. On Cyclic Matroids and their Applications (2021) [Submitted]. [arXiv:2107.14214](https://arxiv.org/abs/2107.14214)
2. Simran Tinani, Joachim Rosenthal. A Deterministic Algorithm for the Discrete Logarithm Problem in a Semigroup (2021) [Submitted]. [arXiv:2101.11500](https://arxiv.org/abs/2101.11500)
3. Simran Tinani, Joachim Rosenthal. Existence and Cardinality of k -Normal Elements in Finite Fields. Theoretical Computer Science and General Issues. Springer International Publishing, 2021. [doi:10.1007/978-3-030-68869-1_15](https://doi.org/10.1007/978-3-030-68869-1_15) [arXiv:2003.09748](https://arxiv.org/abs/2003.09748)

MANUSCRIPTS IN PREPARATION

1. (With Giacomo Micheli, Severin Schraven and Violetta Weger) Local to Global Principle over Number Fields for Higher Moments.

TEACHING EXPERIENCE

Teaching Assistant at University of Zurich Sep 2019–current

Courses Taught:

MAT001 Kryptographie	Fall 2019
MAT512 Elliptic curves	Spring 2020,
MAT111 Linear Algebra	Fall 2020,
MAT513 Introduction to algebraic function fields and codes	Spring 2021

ACADEMIC ACHIEVEMENTS

Best Overall Academic Performance in Mathematics Department, Indian Institute of Science Education and Research Mohali	MAY 2018
Qualified Council of Scientific and Industrial Research National Eligibility Test (CSIR-NET) in Mathematics, with All-India Rank 83.	JUNE 2018
Six Awards for Best Semester-Wise Academic Performance in Mathematics department Indian Institute of Science Education and Research Mohali	AUG 2014– MAY 2017
Recipient of DST-INSPIRE Scholarship for higher studies in basic sciences, awarded by Department of Science and Technology, Govt. of India.	AUG 2013– AUG 2018

CONFERENCES AND WORKSHOPS

Attendee, INDOCRYPT 2020 (Virtual conference).	DEC 2020
Speaker, International Workshop on the Arithmetic of Finite Fields (WAIFI 2020) , held virtually from Rennes, France. Title of talk: Existence and Cardinality of k -Normal Elements in Finite Fields.	JULY 2020
Young Scholar Attendee, Heidelberg Laureate Forum held in Heidelberg, Germany.	SEP 2016