



Chennai Mathematical Institute

Annual Report

April 2024–March 2025

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1 Preface

Chennai Mathematical Institute (CMI) has been a leading national and international centre for research and teaching in the mathematical sciences for close to 35 years. During this period, CMI has contributed to the growth of mathematics and allied subjects in the country by providing a conducive environment for academic activities at all levels, ranging from school outreach and undergraduate and postgraduate teaching to advanced research.

CMI faculty are all active researchers, comparable to the best in their fields. CMI faculty publish in leading international venues. They are acknowledged internationally as experts in their subject areas and are invited to deliver lectures at major seminars and conferences. Several faculty members are members of national and international academic societies and policy-making bodies. Prof. T.R. Ramadas chairs the Apex Committee of the National Centre for Mathematics. Prof. Rajeeva Karandikar chairs the National Statistical Commission. Dr. B. Srivathsan is the President of the Indian Association for Research in Computing Science (IARCS) from 2023 to 2026. Prof. Madhavan Mukund chairs the Curricular Area Group in Mathematics of the National Council of Educational Research and Training (NCERT), to guide the development of a new set of school textbooks in mathematics for classes 6–12.

CMI continues to be an attractive home for talented young researchers. During 2024–2025, one new faculty member joined CMI, in Physics. Several others have accepted offers and are expected to join during 2025–2026.

CMI's teaching programme remains a benchmark for undergraduate and postgraduate mathematics teaching in the country. Since 1998, CMI has attracted the best students wishing to pursue mathematics, computer science and physics to its high-quality undergraduate and postgraduate programmes. The undergraduate programmes offered in CMI are B.Sc. Honours in Mathematics and Computer Science, and B.Sc. Honours in Mathematics and Physics. At the Masters level, CMI offers M.Sc. in Mathematics, M.Sc. in Computer Science, and M.Sc. in Data Science. In addition, CMI offers Ph.D. programmes in Mathematics, Computer Science and Physics.

The B.Sc. and M.Sc. programmes in CMI have traditionally had a strong research focus. An overwhelming majority of CMI students go on to join graduate programmes at the best institutions across the world, such as Caltech, Carnegie-Mellon, Harvard, MIT, Princeton and Stanford in USA, Oxford in UK, ENS Paris in France, the Max Planck Institutes and Humboldt University in Germany, as well as IISERs, IMSc, ISI, IISc, IITs and TIFR in India, not to mention CMI itself. The newer M.Sc. Data Science programme has a more applied focus and the response from industry has been highly positive, with an outstanding placement record

CMI has made significant contributions to India's scientific manpower. The number of CMI graduates who are faculty members at institutions such as IISc, ISI, IITs, IISERs, IIMs, TIFR, IMSc and CMI grows steadily each year. CMI alumni also hold faculty positions at prestigious universities across the world.

CMI students are also much sought after in industry, thanks to their strong background in mathematics, statistics and computing. Graduates from CMI have joined companies in areas ranging from finance and insurance to manufacturing and retail, as well as startups offering technology solutions that exploit the power of machine learning.

CMI continues to be a hub of academic activity, organizing research seminars on a regular basis and hosting numerous visiting researchers for academic collaboration. In June 2024, CMI hosted a workshop on Derived Categories and Semi-orthogonal Decomposition under the aegis of the National Centre for Mathematics (NCM). CMI was a co-host of the conference Indocrypt, held in Chennai in December 2024. CMI also hosted the annual conference on Statistical Methods in Finance in December 2024. Through the CMI Arts Initiative, a number of talks were organized on topics such as ecology, literature, art and architecture.

Several programmes were conducted under the banner of the Dr. F.C. Kohli Centre of Excellence. Three BIRS-CMI workshops were organized during 2024–2025, as part of the collaboration with the Banff International Research Station (BIRS), Canada. One of these, on Mathematical Foundations of Network Models and their Applications, was preceded by a one-week instructional school for research students. Five more workshops will take place in 2025 and five workshops have been selected for 2026. A mini-workshop on Symplectic Geometry was organized in May 2024, followed by a workshop on Effective Bounds in Commutative Algebra during May–June, 2024.

In March 2022, the Tamil Nadu state government enabled CMI to purchase an additional piece of land at a subsidized price within the SIPCOT IT Park, where CMI is located, a short distance from the present campus. The new campus will have facilities to host large scale workshops and conferences, along with a guest house to accommodate visiting participants. There will also be a mathematics outreach centre with activities and exhibits aimed at attracting students at school and college level to pursue the subject. Construction work on the new campus began during 2024–2025 and is expected to be completed during 2025–2026.

The Institute also maintained its focus on outreach. CMI's students organized their annual nationwide Scholastic Test of Excellence in Mathematical Sciences (STEMS), culminating in an camp at CMI with guest lectures by distinguished speakers. CMI's regular student festival Tessellate was organized in January 2024, with a variety of events and activities and a large number of attendees. In May 2024, CMI hosted the training camp for the International Mathematical Olympiad (IMOTC). This marked the first occasion that IMOTC was held at CMI. The training camp for the International Olympiad in Informatics (IOITC) was held at CMI in June, 2024. In December, CMI hosted the training camp for the European Girls' Mathematical Olympiad (EGMOTC). In July 2024, CMI conducted on-campus outreach lectures in mathematics and science for school students and teachers from Chennai, in collaboration with the National Academy of Sciences, Allahabad (NASI).

As always, we are very pleased to acknowledge the agencies and organizations that support CMI's activities and sustain its growth. Over the years, CMI has received steady support from the Government, primarily through the Department of Atomic Energy. CMI is fortunate to be the beneficiary of generous support from private sources, including CSR

funding from both small and large organizations, notably the Shriram Group Companies, Cognizant Foundation and Trumpf Metamation. CMI also receives a number of grants from private individuals to support the academic activities of the Institute.

In summary, CMI stands out as a unique public-private partnership, dedicated to the pursuit of international quality research and excellence in teaching in the mathematical sciences. This Annual Report summarizes the Institute's achievements in 2024–2025. CMI continues to expand its academic activities and establish its status as one of the leading academic centres.

Madhavan Mukund
Director

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4 Academic Council

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Director, Chennai Mathematical Institute, Chennai
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Professor, Chennai Mathematical Institute, Chennai
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Professor, The Institute of Mathematical Sciences, Chennai (retired)
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13. Jugal Verma
Professor, Indian Institute of Technology Bombay, Mumbai
14. S. Viswanath
Professor, The Institute of Mathematical Sciences, Chennai (retired)

5 Boards of Studies

Mathematics

1. Clare D’Cruz (CMI), Chair
2. V. Balaji (CMI)
3. Rajeeva L. Karandikar (CMI)
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5. D.S. Nagaraj (IISER Tirupati)
6. M. Thamban Nair (IIT, Madras)
7. Parameswaran Sankaran (CMI)
8. Pramathanath Sastry (CMI)
9. S.P. Suresh (CMI, Chair, Board of Studies in Computer Science)

Computer Science

1. S.P. Suresh (CMI), Chair
2. Manindra Agrawal (IIT, Kanpur)
3. V. Arvind (CMI)
4. Madhavan Mukund (CMI)
5. K.V. Subrahmanyam (CMI)
6. V. Vinay (LimberLink, Bangalore)
7. Clare D’Cruz (CMI, Chair, Board of Studies in Mathematics)

Physics

1. V.V. Sreedhar (CMI), Chair
2. K.G. Arun (CMI)
3. H.S. Mani (CMI)
4. K. Narayan (CMI)
5. R. Rajesh (IMSc)
6. J. Samuel (RRI)

Data Science

1. Sourish Das (CMI), Chair
2. Tathagata Bandyopadhyay (IIM Ahmedabad)
3. Shibasish Dasgupta (Pfizer)
4. Rajeeva L. Karandikar (CMI)
5. Madhavan Mukund (CMI)
6. B. Ravindran (IIT Madras)
7. Ramaseshan Ramachandran (Cognizant, retired)
8. Ganesh Sankaralingam (Latentview)
9. K.V. Subrahmanyam (CMI)

Undergraduate Studies

1. Upendra Kulkarni (CMI), Chair
2. Krishna Hanumanthu (CMI)
3. Clare D'Cruz (CMI, Chair, Board of Studies in Mathematics)
4. V.V. Sreedhar (CMI, Chair, Board of Studies in Physics)
5. S.P. Suresh (CMI, Chair, Board of Studies in Computer Science)

6 Institute Members

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Madhavan Mukund

Dean of Studies

K.V. Subrahmanyam

Professor Emeritus

Rajeeva L. Karandikar
Parameswaran Sankaran

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V. Balaji

Professors

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Clare D'Cruz
S. Senthamarai Kannan
S.P. Suresh
Samir Datta
R. Srinivasan
V.V. Sreedhar
K. Narayan
Purusottam Rath
K.G. Arun
Govind S. Krishnaswami
Partha Mukhopadhyay
Manoj Kummini
Krishna Hanumanthu
Amitabh Virmani
Prajakta Nimbhorkar

Associate Professors

M. Sundari
Upendra Kulkarni
Sukhendu Mehrotra
B. Srivathsan
Sourish Das
M. Praveen
Alok Laddha
Geevarghese Philip
Priyavrat C Deshpande
Aiswarya Cyriac
Arun Padakandla (Until Apr 2024)

Assistant Professors

Pranabendu Misra
Nithin Varma (Until May 2024)
Siddhi Pathak
Amit Kumar Sinhababu
Aditya Chandrashekhar Karnataki
Anwesh Ray
Siddharth Pritam
Sumanta Ghosh (Until Dec 2024)
Ronak M Soni

Visiting Faculty

V. Swaminathan
Pascal Weil
B. Ramakrishnan

Ramanujan Fellow

Aradhita Chattopadhyaya

Post-doctoral Fellows

Abhishek T Bharadwaj
Amit Roy (Until Nov 2024)
Amit Kumar Singh (Until Sep 2024)
Amrutha P
Ankit Rai (Until Oct 2024)
Avijeet Ghosh
Bidhan Paul (Until Feb 2024)
Bivas Khan
Buddhadev Hajra
Chandra Kanta Mohapatra
Chi Trung Chau
Dimple (Until Dec 2024)
Dwaipayan Mazumder
Dibyendu Biswas
Garima Shakya (Until Dec 2024)
Gopal Yadav
Kamalesh Saha
Kanhu Kishore Nanda
Kanoy Kumar Das
Koushik Brahma (Until Feb 2025)
Mohit Upmanyu
Neha Malik
Om Prakash
Parvez Rasul

Poulami Dutta Roy (Until Jan 2025)
Plawan Das (Until Nov 2024)
Ritik Soni (Until Mar 2025)
Rashi Lunia (Until Jan 2025)
Sagar Sudhirkumar Sawant
Saipriya Dubey
Shingavekar Pratiksha Satish
Shivani Goel
Shyam Surykant Dhamapurkar
Sitender Pratap Kashyap (Until Oct 2024)
Siddharth Gokuldas Prabhu
Suhas B N (Until Mar 2025)
Somnath Porey
Tanushree Shah

Adjunct Professors

Manindra Agrawal
V. Arvind
Shibasish Dasgupta
Ghanshyam Date
Ramesh Hariharan
S. Kesavan
T.R. Ramadas (Until Oct 2024)
V. Lakshmibai
Usha Mahadevan
H. S. Mani
Neeraj Kayal
Raghav Kulkarni
T. Parthasarathy
S. Ramanan
R.V. Ramamoorthi
B.V. Rao
Nitin Saxena
K. Srilata
Mandayam Srivas
Bala Sathiapalan
M.R. Srinivasan
A. Thyagaraja
P.S. Thiagarajan
V. Vinay
Yegnanarayanan Chandramouli

Research Scholars

Aashish Satyajith(Until Mar 2025)
Abhiram Subramanian
Aditi Abhijit Kulkarni
Aditya Bhargav
Aisha Negi
Alfaz Kabir
Aleek Maity
Ankit Yadav
Anirban Ganguly
Archit Chauhan (Until Sep 2024)
Arkadev Ghosh
Arnab Sur
Arpan Kumar Bag
Asif Khan
Ashwin Bhaskar
Cyril J Jacob
G Aravind Adithya
Harish Chandramouleeswaran
Harsh
Harsh Vardhan Nahata
Hitesh Saini
Joydeep Sarkar
Kaberi Goswami
Kanika Kakran
Kaustav Giri
Keerthan Ravi
Khushbu Gulati
Krishna Menon (Until Jan 2025)
Kirubakaran S
Kushagra Shandilya
Mangala Pandi P
Muthuvelmurugan I
Nirmal Kotal (Until Jul 2024)
Nima Rose Manjila
Pankaj Saini (Until Aug 2024)
Parthapratim Mahapatra (Until Aug 2024)
Pranoy Sarkar
Preeti
Pritthijit Biswas (Until Aug 2024)
Pritish Sinha

Rajesh Manna (Until Jun 2024)
Ramadas N
Rutuja Vilas Sawant
Sadhanandh Vishwanath B
Sahil Mhaskar
Sanchari Sil
Saurabh Kumar
Sheikh Shakil Akhtar
Sivasankar R
Somnath Sudam Dake(Until Aug 2024)
Soumodev Mal
Sridharan Sankaran
Srinidhi N (Until Dec 2024)
Suhita Hazra
Varun Rajan
Vincent Paul A
Vishwa Prakash H V
Utsab Ghosal

Administrative Staff

Rajeshwari Nair, *Registrar*
Ranjini Girish, *Accounts Officer*
B. Godwin, *Office Assistant (Until Jul 2024)*
Nisha John, *Accounts/Administrative Executive*
Daniel Lawrence, *Plumber Cum Electrician*
T. Jothi, *Electrician Cum Plumber*
A. Sankaranarayanan, *Systems Engineer*
Venu Santhakumari, *Chief Operating Officer*
Sathishkumar A, *Administrative Assistant*

7 Faculty Profiles

Rajeeva L. Karandikar

Rajeeva L. Karandikar received his B.Sc. from Indore University, Indore (1976), M.Stat. from Indian Statistical Institute, Kolkata (1978) and Ph.D. from Indian Statistical Institute, Kolkata (1981).

He has been an Associate Professor at the Indian Statistical Institute, Delhi (1984-89), a Professor at the Indian Statistical Institute, Delhi (1989-2006), a Professor-in-Charge at the Indian Statistical Institute, Delhi (2000-2002), Head, Delhi Center at the Indian Statistical Institute, Delhi (2000) and (2004-2006) and an Executive Vice-President at Cranes Software International Limited.

He received the Shanti Swarup Bhatnagar Award in 1999. He has been awarded the P C Mahalanobis Gold medal by the Prime Minister at the Indian National Science Congress in February 2014. He is a fellow of the Indian Academy of Sciences and the Indian National Science Academy.

His research interests are: Probability theory and Stochastic Processes, Applications of Statistics and Cryptography.

Madhavan Mukund

Madhavan Mukund received his B.Tech. (Computer Science and Engineering) from the Indian Institute of Technology, Bombay (1986) and his Ph.D. (Computer Science) from Aarhus University, Aarhus, Denmark (1992).

He is a member of the Executive Council and President of the Indian Association for Research in Computing Science (IARCS), as well as a member of the ACM India Council.

His research interests include models for concurrent and distributed systems, formal verification and distributed algorithms.

K.G. Arun

K.G. Arun received his B.Sc. (Physics) from Calicut University, Calicut (1998), M.Sc. (Physics) from Cochin University of Science and Technology (2001) and Ph.D. (Physics) from Raman Research Institute, Bangalore.

He has been a Postdoctoral Research Associate, Washington University in St Louis and VESF Fellow, LAL Orsay & IAP, Paris (2009-2010).

His research interests are Gravitational Wave Astrophysics, Modelling compact binaries, High energy Astrophysics and Cosmology, Tests of General Relativity and Alternative theories of gravity.

V. Balaji

V. Balaji received his B.A. Hons. (Mathematics) from University of Delhi (1982), his M.A. (Mathematics) from University of Delhi (1984), his Ph.D. from University of Madras (1991). He has been an NBHM Post-doctoral Fellow at the Chennai Mathematical Institute (1989–92).

He received the Shanti Swarup Bhatnagar Award in 2006 and is a Fellow of the Indian Academy of Sciences.

His research interest is Algebraic Geometry.

Clare D' Cruz

Clare D' Cruz received her M.Sc. (Mathematics) from the Indian Institute of Technology, Bombay (1991) and her Ph.D. (Mathematics) from the Indian Institute of Technology, Bombay (1996).

She has been a Post-Doctoral Fellow at the Tata Institute of Fundamental Research, Mumbai (1996–98) and a Visiting Scholar at the Northeastern University, Boston, U.S.A. (1997–98).

Her research interest is Commutative algebra.

Govind S. Krishnaswami

Govind S. Krishnaswami received his B.Sc. (Physics), B.A. (Mathematics) from University of Rochester, U.S.A. (1999), M.A. (Physics), from University of Rochester, U.S.A. (2001) and Ph.D. (Physics) from University of Rochester, U.S.A. (2004).

He has been a Marie Curie Fellow, Spinoza Institute & Institute for Theoretical Physics, Utrecht University, The Netherlands.

His research interests are Quantum Field Theory, Hydrodynamics and Mathematical Physics

Samir Datta

Samir Datta received his B.Tech. (Computer Science and Engineering) from the Indian Institute of Technology, Kanpur (1995), M.S. from Rutgers University (1997) and Ph.D. from Rutgers University (2004).

He has been a Network Architect at Tellium Inc. (2000-03) and a Post Doctoral Fellow at WINLAB, Rutgers University (2004-05).

His research interests are Complexity Theory, Wireless and High Speed Networking.

K. Narayan

K. Narayan received his B.Tech. (Engineering Physics) from the Indian Institute of Technology Bombay, Mumbai (1997), M.S. (Physics) from the Cornell University, U.S.A. (1999) and Ph.D. (Physics) from the Cornell University, U.S.A. (2002).

He has been a Research Assistant at the Cornell University, U.S.A. (1998-2001), a Research Assistant at the Cornell University, U.S.A. (2001-02), a Postdoctoral Research Fellow at the Duke University, U.S.A. (2002-04) and a Postdoctoral Research (Visiting) Fellow at the Tata Institute of Fundamental Research, Mumbai (2004-07).

His research interests are String theory and cosmology, Stringy geometry and D-brane gauge theories.

K. Narayan Kumar

K. Narayan Kumar received his M.Sc. (Tech.) in Computer Science from Birla Institute of Technology and Science, Pilani (1990). He received his Ph.D. from the TIFR/University of Bombay (1997).

His research interests include Logic, Automata theory and Concurrency.

Partha Mukhopadhyay

Partha Mukhopadhyay received his B.E. (Electronics & Telecommunication Engineering) from Jadavpur University, Kolkata (2000), M.Tech. (Computer Science) from the Indian Statistical Institute, Kolkata (2002) and Ph.D. from the Institute of Mathematical Sciences, Chennai (2009).

He has been a Software Engineer at Motorola India Electronics Ltd., Bangalore (2002-2003), a Research Associate at the Indian Statistical Institute, Kolkata (2003-2004) and a Postdoctoral Fellow at Technion, Israel (2009-2010).

His research interests are Complexity Theory and Additive Combinatorics.

Purusottam Rath

Purusottam Rath received his Ph.D. (Mathematics) from Harish Chandra Research Institute, Allahabad (2006).

He has been a Visiting Fellow at the Institute of Mathematical Sciences, Chennai (2006–2007) and a Coleman Research Fellow at Queen’s University, Canada (2007–2008).

His research interests are Combinatorial Number Theory, Diophantine Approximation and Transcendental nature of special values of L -functions.

T.R. Ramadas

T.R. Ramadas received his M.Sc. in Physics from the Indian Institute of Technology, Kanpur (1977) and Ph.D. in Mathematics from TIFR/University of Bombay (1982).

He has been a Professor at the School of Mathematics, TIFR till June 2002, a Professor at the University of Montpellier, France (2000-03), a Research Scientist at ICTP (2003-10) and Head, Mathematics Group, ICTP (2010-13).

He has received the Shanti Swarup Bhatnagar Award for Mathematical Sciences (1998). He is a Fellow of the Indian Academy of Sciences.

His research interests are: Differential and Algebraic Geometry.

Parameswaran Sankaran

P. Sankaran received his B.Sc. (Mathematics) degree from the University of Madras (1979), his M.Sc. (Mathematics) degree from I.I.T. Madras (1981) and his Ph.D. from the University of Calgary, Calgary, Canada (1985).

He held Post-Doctoral Fellowships at the University of Calgary (1985-87), and at The Institute of Mathematical Sciences (1987-89). He was as faculty member at CMI since its inception in 1989 till 2000. Since 2000 till 2019, he was at The Institute of Mathematical Sciences, Chennai. He rejoined CMI as Professor in July 2019.

His research interests include: Topology, group theory, Lie groups and representation theory.

Pramathanath Sastry

Pramathanath Sastry received his B.Sc. (Hons) in Mathematics from University of Delhi, New Delhi (1982), M.Stat. from the Indian Statistical Institute, New Delhi (1984) and Ph.D. (Mathematics) from Purdue University, U.S.A. (1990).

He has been a Teaching Assistant, a Research Assistant at Purdue University, U.S.A. (1984-1990), a Visiting Assistant Professor at University of Missouri, U.S.A. (1990-1991), a Visiting Fellow at the Tata Institute of Fundamental Research, Mumbai (1991-1992), a Fellow at SPIC Science Foundation (1992-1995), a Reader at SPIC Science Foundation (1995-1996), a Reader at Harish-Chandra Research Institute, Allahabad (1996-1999), a Reader F at Harish-Chandra Research Institute, Allahabad (1999-2001), a Visiting Assistant Professor at Purdue University, U.S.A. (1999-2001), an Asst. Assoc. Professor (Term) at the University of Toronto, Canada (2001-2006), CLA at McMaster University, Canada (2006) and an Assistant Professor at East Carolina University, U.S.A. (2007-2009).

His research interest is Algebraic Geometry.

S. Senthamarai Kannan

S. Senthamarai Kannan received his B.Sc. from HKRH College, Uthama Palayam (1985–88), M.Sc. from the Madurai Kamaraj University (1988–90) and Ph.D. from the Chennai Mathematical Institute, (1992–98). He has been a Post-doctoral Fellow at the International Centre for Theoretical Physics (1999–2000).

His research interests are Representation Theory and Algebraic Geometry.

V.V. Sreedhar

V.V. Sreedhar received his B.Sc. from Andhra University, Visakhapatnam, M.Sc. (Physics) from the Indian Institute of Technology, Madras and received his Ph.D. (Physics) from Saha Institute of Nuclear Physics, Jadavpur University, Calcutta.

He has been an Assistant Professor in the Department of Physics at the Indian Institute of Technology, Kanpur, a Post-doctoral researcher at the School of Theoretical Physics, Dublin Institute of Advanced Studies, Dublin, Ireland and a Post-doctoral researcher at the Institute for Theoretical Physics, Uppsala University, Uppsala, Sweden.

His visiting positions include stints at the S. N. Bose National Centre for Basic Sciences, Kolkata, Raman Research Institute, Bangalore, Universities of Rochester, New York and Cincinnati, Ohio, U.S.A. and the High Energy Research Organization (KEK), Tsukuba, Japan.

His research interests are Quantum Entanglement, Classical and Quantum Field Theory and Fluid Dynamics.

K.V. Subrahmanyam

K.V. Subrahmanyam received his B.Tech. (Computer Science and Engineering) degree from the Indian Institute of Technology, Bombay (1986) and M.S. from Vanderbilt University, U.S.A. in 1987. He received his Ph.D. from the TIFR/University of Bombay in December, 1995.

His research interests are Circuit Complexity, Algebraic methods in Complexity theory.

Aiswarya Cyriac

Aiswarya Cyriac received her B.Tech. in Computer Science and Engineering from National Institute of Technology (2008), First year of Masters from Institute of Mathematical Sciences, Chennai (2009), Second year of Masters from Master Parisien de Recherche en Informatique (MPRI), Ecole Normale Supérieure de Cachan, France (2010) and Ph.D. in Computer Science from Laboratoire Spécification et Vérification, Ecole Normale Supérieure de Cachan, France (2014).

She has been a Teaching Assistant at ENS, Cachan (2010-13), a Lecturer and a Postdoctoral Researcher at Uppsala University (2014-15).

Her research interests are: Lossy channel systems with data, Gossip beyond channel bounds and Under-approximate analysis of data-centric data-base systems.

Sourish Das

Sourish Das received his B.Sc. (Statistics) from St. Xavier's College, Calcutta (2001), M.Sc. (Statistics) from Calcutta University, Calcutta (2003) and Ph.D. (Statistics) from the University of Connecticut, U.S.A. (2008).

He has been a Postdoctoral Fellow at the Statistical and Applied Mathematical Science Institute (aka SAMSI) (2008-10), A Postdoctoral Associate at Duke University (2008-10) and a Scientist - Analytics at SAS Research & Development, India (2010-13).

His research interests are: Biostatistics, Financial Statistics, Functional Data Analysis and Bayesian Statistics.

Krishna Hanumanthu

Krishna Hanumanthu received his B.Sc. (Mathematics) from the Chennai Mathematical Institute (2001), M.Sc. (Mathematics) from the Chennai Mathematical Institute (2003) and Ph.D. (Mathematics) from the University of Missouri (2008).

His research interests are Algebraic Geometry and Commutative Algebra.

Upendra Kulkarni

Upendra Kulkarni received his B.Tech. (Computer Science and Engineering) from the Indian Institute of Technology Bombay, Mumbai (1992) and Ph.D. (Mathematics) from Brandeis University, U.S.A. (1998).

He has been a Visiting Assistant Professor at the University of Massachusetts Amherst (1998-2000), an Assistant Professor at the Truman State University (2000-05), An Associate Professor at the Truman State University (2005), a Visiting Scientist at the Indian Statistical Institute, Bangalore (2005-06) and a Visiting Fellow at the Tata Institute of Fundamental Research, Bangalore (2006-07).

His research interests are Representations of algebraic groups over the integers and in characteristic p , Algebraic aspects of Lie representation theory including Lie algebras, quantum groups and related combinatorics and in solving elementary challenging problems.

Manoj Kummini

Manoj Kummini has received his B.Tech. (Electronics and Communication Engineering) from the University of Calicut (1999), M.E. (Telecommunication Engineering) from the Indian Institute of Science, Bangalore (2002), M.A. (Mathematics) from the University of Kansas, Lawrence (2005) and Ph.D. from University of Kansas, Lawrence (2008).

He has been a Software Engineer at Sasken Communication Technologies, Bangalore (1999–2000), a Senior Design Engineer (2003) & Design Engineer (2002-2003) at Texas Instruments India, Bangalore, Graduate Teaching Assistant, University of Kansas, Lawrence, KS, U.S.A. (2003-2008), Research Assistant Professor, Purdue University, West Lafayette, IN, U.S.A. (2008-2011) and a Post-doctoral Fellow at Mathematical Sciences Research Institute, Berkeley, CA, U.S.A. (2012).

His research interest is commutative algebra.

Alok Laddha

Alok Laddha received his B.Sc. in Physics from University of Mumbai (1998), M.Sc. in Physics from Indian Institute of Technology (2000) and Ph.D. in Theoretical Physics from Institute of Mathematical Sciences (2008).

He has been a Teaching Assistant at University of Utah, USA (200-03), a Research Fellow at Institute of Mathematical Sciences, Chennai (2004-08), a Postdoctoral Fellow at Raman Research Institute, Bangalore (2008-10), a Postdoctoral Fellow at Institute of Gravitation and Cosmos, Pennsylvania State University (2010-12), and a Ramanujan Fellow at the Chennai Mathematical Institute, Chennai (2012-14).

His research interest is: Loop Quantum Gravity.

Sukhendu Mehrotra

Sukhendu Mehrotra received his B.Sc. (Hons) in Mathematics from Delhi University (1998), M.S. in Mathematics from the University of Delaware (2000) and Ph.D. in Mathematics from the University of Pennsylvania (2005).

He has been a Visiting Assistant Professor at the University of Massachusetts Amherst (2005–2009) and Van Vleck Visiting Assistant Professor at the University of Wisconsin Madison (2009–2012).

His research interests are algebraic geometry and homological algebra—more specifically, derived categories, Bridgeland stability conditions and moduli problems, and string theory.

Prajakta Nimbhorkar

Prajakta Nimbhorkar received her B.E. (Computer Science and Engineering) from Government College of Engineering, Aurangabad (2003), M.Tech. (Information Technology) from Indian Institute of Technology, Bombay (2005) and Ph.D. from The Institute of Mathematical Sciences, Chennai (2010).

Her research interests are Complexity and Algorithms.

Arun Padakandla

Arun Padakandla (Member, IEEE) received the M.Sc. degree in Electrical Communication Engineering from the Indian Institute of Science, Bengaluru in 2008. He went onto receive a M.Sc. degree in Mathematics and the Ph.D. degree in Electrical Engineering:Systems, both from the University of Michigan at Ann Arbor.

Following a brief stint as a Research Engineer at Ericsson Research, San Jose, he joined the NSF Center for Science of Information as a Post-Doctoral Research Fellow in 2015. From 2018 he has been on the Faculty of the Department of EECS, The University of Tennessee, Knoxville, where he is currently on lien.

His research interests lie in quantum and classical information science.

Geevarghese Philip

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He has been Senior Application Developer - Oracle Apps at Oracle India Pvt. Ltd., Bangalore, (2002-06), and a Postdoctoral researcher at Max Planck Institute for Informatics, Saarbruecken, Germany (2011-2015).

His research interest is: Parametrized Algorithms and Complexity.

M. Praveen

M. Praveen received his B.E. in Electronics and Communication Engineering from R.V. College of Engineering, Bangalore University, Bangalore (2001), M.Sc. in Theoretical Computer Science from the Institute of Mathematical Sciences, Homi Bhabha National Institute, Chennai (2008) and Ph.D. in Theoretical Computer Science from the Institute of Mathematical Sciences, Homi Bhabha National Institute, Chennai (2011).

He has been a Software Engineer at Mindtree Consulting Pvt. Ltd., Bangalore (2002-06), a Research Intern at Microsoft Research, Bangalore (2011), ERCIM Postdoctoral Researcher

at Inria Saclay - Ile de France (2012) and a Postdoctoral Researcher at Laboratoire Bordelais de Recherche en Informatique, France (2013-14).

His research interests are: Computational complexity of modelling and verifying concurrent infinite state systems, logic and parameterized complexity.

R. Srinivasan

R. Srinivasan received his Ph.D. degree in Mathematics from the Indian Statistical Institute and the Institute of Mathematical Sciences (1998).

He has been a Visiting Fellow at the Harish-Chandra Research Institute, Allahabad (1998-2000), a Post Doctoral Fellow at the Indian Statistical Institute (2000-01), a Post Doctoral Fellow at Universite d'Orleans, France (2001-02), a Visiting Scientist at the Indian Statistical Institute (2002-03), a Visiting Fellow at ICTP, Trieste, Italy (2003) and a JSPS Post Doctoral Fellow at University of Tokyo, Japan (2003-2005).

His research interests are Operator Algebras and Operator Theory.

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He has been a Postdoctoral Researcher at RWTH-Aachen (2012-13).

His research interests are: Theoretical foundations of formal verification and Formal language theory.

M. Sundari

M. Sundari received her M.Sc. (Mathematics) from the University of Hyderabad, Hyderabad (1988), M.Phil. (Mathematics) from the University of Hyderabad, Hyderabad (1990) and Ph.D. (Mathematics) from the Indian Statistical Institute, Bangalore (1996).

She has been a Visiting Mathematician at the International Center for Theoretical Physics, Trieste, Italy (1996), a Research Associate at the University of New South Wales, Sydney, Australia (1996-97), an Assistant Professor in the Effat College, Jeddah, Saudi Arabia (2000-01), a Faculty member at the ICFAI Institute of Science and Technology, Hyderabad (2003-04) and an Assistant Professor at the Indian Institute of Technology Roorkee, Roorkee (2004-06).

Her research interests are Representation theory of Lie groups, Uncertainty Principles in Harmonic Analysis, Wiener-Tauberian theorems.

S.P. Suresh

S.P. Suresh received his M.C.A. from R.E.C. Trichy (1996), his M.Sc. (by Research) from Anna University (1999), and his Ph.D. from the Institute of Mathematical Sciences (2003).

His research interests are Logic in Computer Science, Reasoning about Security protocols and Classical Indian Epistemology.

Amitabh Virmani

Amitabh Virmani received his M.Sc. degree in Physics from Indian Institute of Technology, Kanpur (2003) and Ph.D. in Physics from University of California, USA (2008).

He has been a Postdoctoral Researcher at Université Libre de Bruxelles and International Solvay Institutes, Belgium (2008-2011), Junior Scientist at Max-Planck-Institut Für Gravitationsphysik, Germany (2011-12), Assistant Professor at Institute of Physics, Bhubaneswar (2012-2014) and Reader-F at Institute of Physics, Bhubaneswar (2014-2017).

His research interests are general relativity and gravitational aspects of string theory & classical and quantum aspects of black holes.

Priyavrat Deshpande

Priyavrat Deshpande received his B.Sc. in Mathematics from Pune University, Pune (2000), M.Sc. in Mathematics from Pune University, Pune (2002), M.Sc. in Mathematicians from the University of Western Ontario (2007) and Ph.D. in Mathematics from the University of Western Ontario, Canada (2011).

Priyavrat Deshpande has been a Junior Research Fellow at Computational Mathematics Lab, Pune (2002-04), a Visiting Lecturer at Institute of Management and Career Courses, Pune (2005), a Lecturer at S.P. College, Pune (2004-06), a Graduate Teaching Assistant at University of Western Ontario, Canada (2006-11), a Lecturer in Mathematics at University of Western Ontario, Canada (2011), a Visiting Research Scholar at Northeastern University, Boston, USA (2011-12) and a Visiting Fellow at the CMI (2012-15).

His research interest are: Topology, Combinatorics and Algebra.

Aditya Karnataki

Aditya Karnataki received his B.Sc.(Hons.) in Mathematics and Computer Science from Chennai Mathematical Institute (2010), M. A.in Mathematics from Boston University (2012) and Ph.D. in Mathematics from Boston University (2016).

He has been a visiting fellow at Tata Institute of Fundamental Research, Mumbai (2016-17), a post doctoral fellow at Beijing International Center for Mathematical Research, Peking

University (2017-21), and a visitor at Beijing International Center for Mathematical Research, Peking University (2021-22).

His research interests are: p -adic Galois representations, p -adic automorphic forms, congruences of automorphic forms.

Pranabendu Misra

Pranabendu Misra received his B.Sc. (Honors) in Mathematics and Computer Science in 2010, and M.Sc. in Computer Science in 2012 from the Chennai Mathematical Institute, India. He received his PhD in Computer Science from the Institute of Mathematical Sciences, HBNI, India in 2017.

He was a Researcher at the Department of Informatics, University of Bergen, Norway from 2016 to 2019. He was a Postdoctoral Fellow at the Max-Planck Institute for Informatics, Saarbrücken, Germany from 2019 to 2021. Since 2021, he is an Assistant Professor in Computer Science at the Chennai Mathematical Institute, India.

His research interests are: Algorithms, Graph Theory and Machine Learning.

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Siddhi Pathak completed BSc in Mathematics and Computer Science (Hons.) from Chennai Mathematical Institute, Chennai (2014), MSc in Mathematics from Queen's University, Canada (2015) and Ph.D. in Mathematics from Queen's University, Canada (2019).

Siddhi Pathak was a S. Chowla Assistant Research Professor at Pennsylvania State University, USA (2019-2021) and an INSPIRE faculty fellow at Chennai Mathematical Institute (August 2021-Dec 2021).

Her research interest is: Number Theory

Her research interests include Computational Complexity Theory and algorithmic aspects of Algebra.

Amit Kumar Sinhababu

Amit Sinhababu received his B.E in Information Technology from IEST Shibpur (2017-2011), M.Tech in Computer Science from Indian Institute of Technology Kanpur (2012-2014), and Ph.D. in Computer Science from Indian Institute of Technology Kanpur (2015-2019).

He has been a Postdoctoral Researcher at Aalen University, Germany (2019-22).

His research interests primarily lie in computational number theory and algebra, and algebraic complexity theory. His current focus is on polynomial factorization and related problems.

Nithin Varma

Nithin Varma received his B.Tech. in Computer Science and Engineering from National Institute of Technology Calicut (2011), M.Sc. in Computer Science from Tata Institute of Fundamental Research Mumbai (2014), and his PhD in Computer Science from Boston University, USA (2019).

He was a postdoctoral fellow at the Department of Computer Science, University of Haifa, Israel from 2019 to 2021.

His research interests are: Sublinear algorithms, randomized algorithms and approximation algorithms.

Anwesh Ray

Anwesh Ray received his B.Sc. (Honours) in Mathematics and Computer Science from Chennai Mathematical institute from 2010-2013, M.Sc. in Mathematics from Chennai Mathematical institute from 2013-2015 and Ph.D. in Mathematics at Cornell University from August 2015 - April 2020.

He was a Postdoctoral fellow in Mathematics at University of British Columbia, Vancouver from September 2020 to September 2022 and Simons Postdoctoral fellow at Centre de recherches Montreal, Universite de Montreal from September 2022 to June 2023.

His research interests are: Number theory, Iwasawa theory, Galois representations and arithmetic statistics.

Sumanta Ghosh

Sumanta Ghosh received his B.E. (Computer Science and Technology) from Bengal Engineering and Science University, Shibpur (2011), M.Tech. (Computer Science and Engineering) from IIT Kanpur (2001) and Ph.D. (Computer Science and Engineering) from IIT Kanpur.

He has been a Postdoctoral Fellow, IIT Bombay (October, 2019 - September, 2021) and CMI Postdoctoral Fellow, Caltech, USA (January, 2022 - August 2023).

His research interest is broadly in Theoretical Computer Science, specifically in Computational Complexity, Derandomization, Algebraic Complexity Theory, Parallel Complexity, and Computational Algebra.

Siddharth Pritam

Siddharth Pritam received his Integrated M.Sc. (Mathematics and Computing) from Indian Institute of Technology Kharagpur, Kharagpur, India (2011), M.Sc. and Ph.D. (Computer Science) from Inria, Sophia Antipolis (Université Côte D'azur, Nice) France (2020).

He has been a Postdoctoral Research Associate in team Datashape Inria Sophia Antipolis, France (Oct 2020- May' 2021).

His research interests are Computational Topology, Topological Data Analysis and Computational Geometry

Ronak M Soni

Ronak M Soni received their B.Sc. (Physics) from CMI in 2012 and PhD (Physics) from Tata Institute of Fundamental Research, Mumbai in 2018. They then took up postdoctoral positions in Stanford University, USA (2018-2021) and University of Cambridge, UK (2021-2024) before joining CMI in 2024.

His research interests involve the application of techniques and ideas from quantum information theory and condensed-matter theory to the study of quantum gravity.

8 Achievements

- Textbook by Govind Krishnaswami 'Classical Mechanics: From Particles to Continua and Regularity to Chaos' was published in 2024
- Siva Athreya, Abhay G. Bhatt, and B. V. Rao (eds.) 'Probability and Stochastic Processes, A Volume in Honour of Rajeeva L. Karandikar' was published in 2024
- Ananth Shankar awarded Sloan Fellowship for 2024.
- CMI students win 5th rank in Simon Marais International Mathematics Competition 2024, Asia-Pacific region

9 Research Activities

Computer Science

Research carried out by the computer science group spans formal methods, algorithms, complexity theory, machine learning, and computational biology.

Formal methods research involved formal verification and game-/automata-based modelling, with applications to concurrent and distributed systems and to infinite-state settings. Research in verification included verification of parametrized weak-memory programs and verification under persistent weak-memory models, along with parametric verification of infinite-state systems (including variants with data). The group also developed a framework for formally proving correctness of consensus protocols using UCLID, leveraged such proofs to improve bounded model checking, and explored reinforcement-learning-based testing of consensus protocols. Work also covered games on richer models such as games over multi-pushdown systems, as well as synchronous distributed games and asynchronous games. In related model-checking and specification directions, the group worked on type checking of tree transductions (including pattern-based tree transformations), interoperability for interface automata with data, and computing effective representations of downward closures of fixed-treewidth languages.

Research in algorithms involved work on algebraic, graph, and fairness/allocation problems, spanning polynomial-time, exact, parameterized, parallel, dynamic, and space-bounded paradigms. Research on algebraic algorithms included efficient algorithms for checking equality of principal minors (and NC algorithms for testing principal-minor equivalence), polynomial identity testing (including PIT for polynomials with low partial-derivative space), order finding for ROABPs, supersparse polynomial divisibility testing, and work on sparse polynomials and linear recurrences; the year also included progress on arithmetic formula factoring and related classical computational algebra problems (including the factor conjecture and debordering). Graph-algorithmic work included dynamic maximum matching via the Gallai–Edmonds decomposition, dynamic maximal independent set, dynamic planar (graph) isomorphism, dynamic reachability and distance in temporal graphs, and parameterized/dynamic parameterized algorithms (e.g., edge multicut in trees; kernels and FPT algorithms for edge deletion to cactus forests, and improvements for feedback vertex set in tournaments). Parallel and space-bounded directions included parallel DFS in bounded-genus and single-crossing-minor-free graphs, space complexity of DFS in bounded-treewidth graphs, space complexity of maximal paths in planar graphs, simultaneous space–time bounds for planar graphs, and a small-space algorithm for ReachUL; the group also worked on dynamic tree isomorphism in DynFO under bulk changes and related structural tasks such as tree/graph canonization via polynomial methods. In fairness and allocation, the group worked on proportional allocation of mixed items, EFX allocations (including for four agents and approximate EFX variants), equitable allocations, and many-to-one matchings with costs and utilities.

The group’s research in complexity theory focused on algebraic and proof complexity, monotone and communication complexity, and derandomization-related questions. This included hardness vs. randomness in algebraic settings, pseudorandom generators for polynomials, polynomial and rational identity testing, equivalence testing for restricted algebraic branching programs (including rank-one restrictions), and applications of noncommutative algebras. The year also saw continued work on algebraic complexity and algebraic proof complexity, culminating in formula lower bounds and arithmetic-formula lower-bound directions.

Research in machine learning centered on foundations and analysis/interpretability tooling. Work included study of foundational architectures (RNNs, CNNs, transformers), reinforcement learning directions (including RL for Rubik’s cube and adversarial settings), and the use of MAXSAT solvers to provide explanations of DNN behaviour; reinforcement-learning-based testing was additionally applied in the context of consensus-protocol analysis.

In computational biology, the group worked on glycan-related computational questions, including optimal decoding of glycan information in single-cell data and associated ordering problems in bacterial glycosylation.

Mathematics

Research in mathematics at Chennai Mathematical Institute covered number theory, algebraic geometry, commutative algebra, topology, combinatorics, analysis, and interdisciplinary areas, combining core theory with applications.

Work in analytic number theory included Diophantine approximation with restrictions to primes, exponential sums, and problems on values of L -functions such as non-vanishing and zeros of related polynomials. Research also addressed analogues of Ramanujan polynomials and mock modular forms. Arithmetic studies of algebraic nature involved Selmer groups, cyclotomic fields, and conjectures such as Kummer’s conjecture. Further work included p -adic Hodge theory, cohomology of (φ, τ) -modules. Work in transcendental methods included irrationality measures, and variants of results like the Erdős–Kac theorem.

Research in algebraic geometry focused on moduli spaces, Schubert varieties, and GIT quotients of Grassmannians and Hessenberg varieties. Work included degenerations of moduli spaces, derived equivalences, and singularities of Hilbert and Quot schemes. Positivity questions were studied via Seshadri constants for line and vector bundles on various varieties. Tropical vector bundles were also investigated.

In commutative algebra, work addressed symbolic powers, integral closure, and invariants such as regularity, depth, and projective dimension. Research included monomial and determinantal ideals, binomial edge ideals, and properties like Cohen–Macaulayness and linear resolutions, along with F-singularities and related techniques.

Research included knot theory, contact topology, and low-dimensional topology, covering Jones polynomials, Legendrian knots, and surgeries, as well as knots in different ambient

spaces. Other work involved equivariant cohomology, Stiefel–Whitney classes, and representations of finite groups. Studies also covered simplicial and graph complexes and their properties.

Combinatorics research included permutation patterns, partitions, and simplicial complexes. Algebraic combinatorics involved Stanley–Reisner ideals and monomial ideals. Graph-theoretic work included connected ideals, coloring problems, and kernelization. There was also work linking combinatorics with machine learning through graph kernels and simplicial methods.

Work in analysis and dynamics included dynamical systems, recurrence relations, and complexity questions. Research in probability and statistics covered fractional Poisson processes, Bayesian inference, and learning methods.

Interdisciplinary work included climate modeling using mathematical and machine learning techniques, as well as results in risk theory. Research in the emerging areas included applications of machine learning in number theory and climate science, and use of geometric and combinatorial methods in data science. There were also connections with mathematical physics, including work related to quantum systems and modular forms.

Physics

During the year, research in Physics spanned a broad range of problems in gravitational physics, quantum field theory, cosmology, and mathematical physics. Significant progress was made in gravitational-wave science, including parameter estimation, environmental effects, hierarchical mergers of black holes and neutron stars, eccentric compact binaries, constraints on astrophysical formation channels, analysis of LIGO–Virgo O4 data, and tests of general relativity using techniques such as principal component analysis. Several works addressed gravitational waves and holography in de Sitter spacetime, extremal surfaces, slow-roll cosmologies, pseudo-entropy, time entanglement, cosmological complexity, and Big Bang/Crunch singularities. Research in black hole physics included attractor mechanisms for five-dimensional black holes, higher-derivative corrections to supersymmetric indices, Euclidean supergravity, and BPS invariants in supersymmetric field theories. Advances were also made in scattering amplitudes and the KMOC formalism, quantum chaos, open quantum systems, quantum optimal control, and quantum–classical correspondence. Mathematical physics efforts covered mock modular forms, Appell–Lerch sums, instanton partition functions, knot theory, and connections between classical mechanics and differential geometry. Additional work explored integrable and semiclassical systems such as the quantum and classical three-rotor problem, the Rajeev–Ranken model, and instabilities in compressible Couette flow. Collectively, these activities reflect a strong and diverse research program at the interface of gravity, quantum theory, and mathematical physics.

10 Publications

Journal Articles

Computer Science

- J1 Jaikumar Radhakrishnan and S. P. Suresh: *Julia Robinson and Hilbert's tenth problem, Resonance - Journal of Science Education*, Vol.29, pp. 747–757, (2024), ISSN 0971-8044, [<https://doi.org/10.1007/s12045-024-0747-4>].
- J2 Vishwas Bhargava, Sumanta Ghosh, Zeyu Guo, Mrinal Kumar and Chris Umans: *Fast multivariate multipoint evaluation over all finite fields, Journal of the ACM*, Vol.71, No. 3, pp. 1–30, (2024), ISSN 0004-5411, [<https://doi.org/10.1145/3652025>].
- J3 Parosh Abdulla, Mohamed Faouzi Atig, Ahmed Bouajjani, K. Narayan Kumar and Prakash Saivasan: *Verification under Intel-x86 with persistency, Proceedings of the ACM on Programming Languages - PACMPL*, Vol.8, pp.1–25, (2024), ISSN 2475-1421 [<https://doi.org/10.1145/3656425>].
- J4 Andrea Borgarelli, Constantin Enea, Rupak Majumdar and Srinidhi Nagendra: *Reward augmentation in reinforcement learning for testing distributed systems, Proceedings of the ACM on Programming Languages - PACMPL*, Vol.8, pp. 1–26, (2024), ISSN 2475-1421, [<https://doi.org/10.1145/3689779>].
- J5 Kartik Nagar, Anmol Sahoo, Romit Roy Chowdhury and Suresh Jagannathan: *Automated robustness verification of concurrent data structure libraries against relaxed memory models, Proceedings of the ACM on Programming Languages - PACMPL*, Vol.8, pp.1–28, (2024), ISSN 2475-1421, [<https://doi.org/10.1145/3689802>].
- J6 C. S. Bhargav, Sagnik Dutta and Nitin Saxena: *Improved lower bound, and proof barrier, for constant, ACM Transactions on Computation Theory*, Vol.16, No. 4, pp. 23, (2024), ISSN 1942-3454, [<https://doi.org/10.1145/3689957>].
- J7 Suja Ramachandran, M. L. Jayalal, M. Vasudevan, Sourish Das and R. Jehadeesan: *Combining machine learning techniques and genetic algorithm for predicting run times of high performance computing jobs, Applied Soft Computing*, Vol.165, pp. 112053, (2024), ISSN 1568-4946, [<https://doi.org/10.1016/j.asoc.2024.112053>].
- J8 V. Arvind and Pushkar S. Joglekar: *Multivariate to bivariate reduction for noncommutative polynomial factorization, Information and Computation*, Vol.301, pp. 105223, (2024), ISSN 0890-5401, [<https://doi.org/10.1016/j.ic.2024.105223>].
- J9 Soumen Mandal, Pranabendu Misra, Ashutosh Rai and Saket Saurabh: *Parameterized approximation algorithms for weighted vertex cover, Theoretical Computer Science*, Vol.1021, pp. 114870, (2024), ISSN 0304-3975, [<https://doi.org/10.1016/j.tcs.2024.114870>].

- J10 Rajeeva Laxman Karandikar: *Chakravyuha - a fast self synchronizing stream cipher*, *Progress in Cryptology - Indocrypt 2024, Pt I*, Vol.15495, pp. 97–116, (2025), ISSN 0302-9743, [<https://doi.org/10.1007/978-3-031-80308-6-5>].
- J11 Sumanta Ghosh, and Pranjal Dutta: *Guest Column: Advances in Polynomial Identity Testing*, SIGACT News Complexity Theory Column.

Maths

- J1 Nirmal Kotal and Manoj Kummini: *The non-F-rational locus of Rees algebras*, *Illinois Journal of Mathematics*, Vol.68, pp.4–20, (2024), ISSN 0019-2082, [<https://doi.org/10.1215/00192082-11417197>].
- J2 T. R. Ramadas: *Symplectic Geometry of Character Varieties and $SU(2)$ Lattice Gauge Theory I*, *Communications in Mathematical Physics*, Vol.405, pp.4–99, (2024), ISSN 0010-3616, [<https://doi.org/10.1007/s00220-024-04968-x>].
- J3 Dharm Veer: *Green-Lazarsfeld property N_p for Segre product of Hibi rings*, *Indian Journal of Pure & Applied Mathematics*, (2024), ISSN 0019-5588, [<https://doi.org/10.1007/s13226-024-00725-x>].
- J4 Ishan Banerjee and Amites Sarkar: *Sums of Two Squares Visualized*, *American Mathematical Monthly*, Vol.131, pp.7–558, (2024), ISSN 0002-9890, [<https://doi.org/10.1080/00029890.2024.2344421>].
- J5 Matilde Lalin and Anwesh Ray: *On the distribution of eigenvalues in families of Cayley graphs*, *European Journal of Mathematics*, Vol.10, pp.3–49, (2024), ISSN 2199-675X, [<https://doi.org/10.1007/s40879-024-00763-z>].
- J6 Clare D’Cruz and Shreedevi K. Masuti: *An extension of Rees’ theorem and two interpretations of a vector in the joint reduction lattice*, *Journal of Algebra and Its Applications*, (2024), ISSN 0219-4988, [<https://doi.org/10.1142/S0219498825503761>].
- J7 S. G. Hazra, M. Ram Murty, and J. Sivaraman: *A note on the two variable Artin’s conjecture*, *Journal of Number Theory*, Vol.262, pp.161–185, (2024), ISSN 0022-314X, [<https://doi.org/10.1016/j.jnt.2024.03.008>].
- J8 Anwesh Ray and R. Sujatha: *On the μ invariants of residually reducible Galois representations*, *American Journal of Mathematics*, Vol.146, pp.6–100, (2024), ISSN 0002-9327, [<https://doi.org/10.1353/ajm.2024.a944359>].
- J9 Jeffrey Hatley, Debanjana Kundu, and Anwesh Ray: *Statistics for anticyclotomic Iwasawa invariants of elliptic curves*, *Mathematische Zeitschrift*, Vol.307, pp.3–49, (2024), ISSN 0025-5874, [<https://doi.org/10.1007/s00209-024-03517-5>].

- J10 Preeti Goyal: *Irrationality of zeros of polygamma functions*, Bulletin of the Australian Mathematical Society, Vol.4, pp.1–15, (2025), ISSN 0004-9727, [<https://doi.org/10.1017/S0004972725000036>].
- J11 Hrishabh Mishra and Anwesh Ray: *On Malle’s conjecture for the product of symmetric and nilpotent groups*, Nagoya Mathematical Journal, (2025), ISSN 0027-7630, [<https://doi.org/10.1017/nmj.2025.5>].
- J12 Nirmal Kotal: *On Frobenius Betti numbers of graded rings of finite Cohen-Macaulay type*, Communications in Algebra, (2025), ISSN 0092-7872, [<https://doi.org/10.1080/00927872.2025.2451084>].
- J13 Krishna Hanumanthu, Cyril J. Jacob, B. N. Suhas, and Amit Kumar Singh: *Seshadri constants on blow-ups of Hirzebruch surfaces*, Mathematische Nachrichten, Vol.298, pp.2–455, (2025), ISSN 0025-584X, [<https://doi.org/10.1002/mana.202400018>].
- J14 Sanoli Gun, Suhita Hazra, and Dhananjaya Sahu: *On holomorphy and non-vanishing of Artin L -functions*, Monatshefte für Mathematik, Vol.206, pp.4–883, (2025), ISSN 0026-9255, [<https://doi.org/10.1007/s00605-025-02060-7>].
- J15 Anwesh Ray and Tom Weston: *Class group statistics for torsion fields generated by elliptic curves*, Journal of the Australian Mathematical Society, Vol.118, pp.2–264, (2025), ISSN 1446-7887, [<https://doi.org/10.1017/S1446788724000156>].
- J16 Anand, Jesse Geneson, Suchir Kaustav, and Shen-Fu Tsai: *Sequence saturation*, Discrete Applied Mathematics, Vol.360, pp.382–393, (2025), ISSN 0166-218X, [<https://doi.org/10.1016/j.dam.2024.09.034>].
- J17 Anwesh Ray: *Lower bounds for the number of number fields with Galois group $GL_2(\mathbb{F}_\ell)$* , Forum Mathematicum, (January 2025), ISSN 0933-7741, [<https://doi.org/10.1515/forum-2024-0059>].
- J18 Somnath Jha, Dipramit Majumdar, Pratiksha Shingavekar: *3-Selmer groups, ideal class groups and cube sum problem*, Journal of Number Theory (to appear).
- J19 A. B. Dixit, M. R. Murty and Siddhi Pathak: *A function related to the Mordell-Weil rank of elliptic curves*, International Journal of Number Theory (to appear).
- J20 Tapas Bhowmik, Siddhi Pathak: *A note on transcendence of special values of functions related to modularity*, Acta Arithmetica.
- J21 Anwesh Ray, Pratiksha Shingavekar: *An analogue of Kida’s formula for elliptic curves with additive reduction*, Ramanujan Journal (to appear).
- J22 Anwesh Ray, Tom Weston: *Arithmetic statistics for Galois deformation rings*, Ramanujan Journal.

- J23 S. Senthamarai Kannan, Aisha Negi: *Automorphism group of \overline{B}* , Comptes Rendus Mathematique (to appear).
- J24 Nirmal Kotal, Manoj Kummini: *Blow-up rings and F -rationality*, Journal of Commutative Algebra (to appear).
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- P180 Sourish Das, Shouvik Sardar: *Jacobi Prior: An Alternative Bayesian Methods for Supervised Learning.*
- P181 Koushik Brahma, Navnath Daundkar, Soumen Sarkar : *LS-category and topological complexity of real torus manifolds and Dold manifolds of real torus type.*
- P182 Abhishek Bharadwaj, Ram Murty, Siddhi Pathak: *Linear relations among values of digamma function at rational arguments.*
- P183 Cyril J Jacob: *Lower bounds for Seshadri constants on blow ups of \mathbb{P}^2 .*
- P184 Trung Chau: *Minimal cellular resolutions of monomial ideals with five generators and their Artinian reductions.*
- P185 Trung Chau, Huy Tai Ha, Aryaman Maithani: *Monomial ideals with minimal generalized Barile-Macchia resolutions.*
- P186 NA: NA.
- P187 John B Etnyre, Tanushree Shah: *On contact cosmetic surgery .*
- P188 Vikraman Balaji: *On desingularisation of moduli of principal bundles.*
- P189 : *On real number with optimal complexity.*
- P190 Sohan Ghosh, Anwesh Ray: *On the Iwasawa theory of Cayley graphs .*
- P191 Clare D'Cruz, Saipriya Dubey, J. . Verma: *On the core and adjoint of the product of complete ideals in two-dimensional regular local rings.*
- P192 Kanoy Kumar Das, Amit Roy, Kamalesh Saha: *On the t -path ideals of chordal graphs.*
- P193 Deblina Dey, A. V. Jayanthan, Kamalesh Saha: *On the v -number of binomial edge ideals of some classes of graphs.*
- P194 M. Charan, J. Meher and Siddhi Pathak: *On zeros of variants of Ramanujan polynomials.*

- P195 Cyril J. Jacob, Bivas Khan: *Positivity of line bundles on general blow ups of Hirzebruch surfaces.*
- P196 Manoj Kummini, Mandira Mondal: *Ramification in modular invariant rings .*
- P197 Trung Chau, Art M. Duval, Sara Faridi, Thiago Holleben, Susan Morey, Liana M. Sega: *Realizing resolutions of powers of extremal ideals .*
- P198 Om Prakash Bhardwaj, Kamalesh Saha: *Regularity of two classes of Cohen-Macaulay binomial edge ideals.*
- P199 Cyril J. Jacob, Bivas Khan, Ronnie Sebastian: *Seshadri constants and negative curves on blowups of ruled surfaces.*
- P200 Krishna Hanumanthu, Cyril J. Jacob, Suhas B. N., Kumar Singh: *Seshadri constants on the blow-ups of Hirzebruch Surfaces.*
- P201 E.M. Sandeep and B. Ramakrishnan: *Simultaneous nonvanishing of central L-values with large squarefree level.*
- P202 Kanoy Kumar Das, Amit Roy, Kamalesh Saha: *Square-free powers of Cohen-Macaulay forests, cycles, and whiskered cycles.*
- P203 Anwesh Ray: *Statistics for Iwasawa Invariants of Elliptic Curves, III .*
- P204 Ashok Kumar, Abbinav Sankar Kailasam, Rai Anish, Shukla Sudeep, Sourish Das, Anirban Chakraborti: *The Impact of Meteorological Factors on Crop Price Volatility in India: Case studies of Soybean and Brinjal.*
- P205 Trung Chau, Nursel Erey, Aryaman Maithani: *The Scarf complex of squarefree powers, symbolic powers of edge ideals, and cover ideals of graphs.*
- P206 Manohar Kumar, Ramakrishna Nanduri, Kamalesh Saha: *The slope of v-function and Waldschmidt constant.*
- P207 Tanushree Shah, Jonathan Simone: *Tight contact structure on toroidal plumber 3-manifolds .*
- P208 Bivas Khan, Diane Maclagan: *Tropical Vector Bundles.*
- P209 Koushik Brahma: *Twisted factorial Grothendieck polynomials and equivariant K theory of weighted Grassmann orbifold.*
- P210 Siddhi Pathak, Yaduraj Rao: *Variants of Erdos-Kac via Tauberian theorems.*
- P211 Nilanjan Bag, Dwaipayan Mazumder: *Weighted exponential sums and its application.*
- P212 Siddhi Pathak: *Zeros of polynomials associated to special values of L-functions.*

Physics

- P213 S Bhat, P Saini, M Favata, C Gandevikar, C K Mishra, K G Arun: *Testing general relativity via direct measurement of black hole kicks.*
- P214 Kaustav Giri, V. V. Sreedhar: *Aharonov-Bohm Scattering From Knots.*
- P215 Soumya Adhikari, Pavan Dharanipragada, Kaberi Goswami, Amitabh Virmani: *Attractor saddle for 5D black hole index.*
- P216 K. Narayan, Hitesh K. Saini, Gopal Yadav: *Cosmological singularities, holographic complexity and entanglement.*
- P217 Aleek Maity, V V Sreedhar: *Dirac Brackets, Lindblad Equation: A Correspondence.*
- P218 Dimple, K. Misra, K G Arun: *Diversity in Fermi/GBM Gamma Ray Bursts: New insights from Machine Learning.*
- P219 Poulami Dutta Roy, Parthapratim Mahapatra, Anuradha Samajdar, K G Arun: *Identifying intermediate mass binary black hole mergers in AGN disks using LISA.*
- P220 Govind S Krishnaswami, Sonakshi Sachdev, Pritish Sinha: *Level crossing instabilities in inviscid isothermal compressible Couette flow.*
- P221 Ghanashyam Date: *Linearized gravitational waves in de Sitter space-time.*
- P222 Kaberi Goswami, K. Narayan, Gopal Yadav: *No-boundary extremal surfaces in slow-roll inflation and other cosmologies.*
- P223 Sumanta Chakraborty, Sk Jahanur Hoque, Amitabh Virmani: *On supertranslation invariant Lorentz charges.*
- P224 A. Gupta, K G Arun and others: *Possible Causes of False General Relativity Violations in Gravitational Wave Observations.*
- P225 Parthapratim Mahapatra, Debatri Chattopadhyay, Anuradha Gupta, Fabio Antonini, Marc Favata, B. S. Sathyaprakash, K G Arun: *Possible binary neutron star merger history of the primary of GW230529.*
- P226 Govind S Krishnaswami, Himalaya Senapati: *Quantum three-rotor problem in the identity representation.*
- P227 S Kapadia, Dimple, D Jain, K Misra, L Resmi, K G Arun: *Rates and beaming angles of GRBs associated with compact binary coalescences.*
- P228 Parthapratim Mahapatra, Debatri Chattopadhyay, Anuradha Gupta, Fabio Antonini, Marc Favata, B. S. Sathyaprakash, K G Arun: *Reconstructing the genealogy of LIGO-Virgo black holes.*

- P229 Subhodip Bandyopadhyay, Yogesh K. Srivastava, Amitabh Virmani: *Supersymmetric Black Hole Hair and $AdS_3 \times S^3$* .
- P230 Subramanya Hegde, Ashoke Sen, P Shanmugapriya, Amitabh Virmani: *Supersymmetric Index for Half BPS Black Holes in $N=2$ Supergravity with Higher Curvature Corrections*.
- P231 P. Dutta Roy, S. Datta, K G Arun: *Tests of general relativity at the fourth post-Newtonian order*.
- P232 Harsh, Sk Jahanur Hoque, Sitender Pratap Kashyap, Amitabh Virmani: *de Sitter Teukolsky waves*.

Ph.D. Thesis

- (1) Jagadish Pine: A universal moduli space of stable parabolic vector bundles over the marked stable curves (April 2024).
- (2) Nirmal Kotal: On F -rationality of blow-up algebras and Frobenius Betti numbers (July 2024).
- (3) Parthapratim Mahapatra: Implications of gravitational recoil for astrophysics and fundamental physics (September 2024).
- (4) Pankaj Saini: Astrophysics and tests of general relativity with gravitational waves from compact binaries in elliptical orbits (September 2024).
- (5) Srinidhi Nagendra: Automated testing of distributed protocol implementations (December 2024).
- (6) Krishna Menon P: Two Topics in Enumerative Combinatorics (January 2025).
- (7) Pritthijit Biswas: Picard groups of certain compact complex manifolds (March 2025).

11 The National Undergraduate Programme

In 1998, CMI initiated a National Undergraduate Programme in the Mathematical Sciences in collaboration with Madhya Pradesh Bhoj Open University with a 3 year course in Mathematics and Computer Science, leading to a B.Sc. Honours degree. In 2001, this programme was extended to the postgraduate level with separate 2 year courses leading to M.Sc. degrees in Mathematics and Computer Science. The scope of the undergraduate programme was expanded in 2003 to incorporate a 3 year course leading to a B.Sc. Honours degree in Physics. CMI commenced a two year course leading to an M.Sc. degree in Applications of Mathematics in 2010.

From 2012, the B.Sc. Physics programme has been restructured as a B.Sc. programme in Mathematics and Physics. There is a common admission to the B.Sc. programmes in Mathematics and Computer Science and Mathematics and Physics and all students do the same courses in the first semester. Students choose their stream at the end of the first semester.

In 2018, MSc Data Science program was launched, keeping in view the current requirement from the industry.

The undergraduate and postgraduate teaching programmes at CMI are both run in cooperation with the Institute of Mathematical Sciences (IMSc), Chennai. These programmes tap the teaching talent available at the elite research institutes of the country, which are normally outside the university system. Students are thus exposed to lectures by active researchers who bring a very different perspective to the teaching.

B.Sc. (Hons.) Mathematics and Computer Science

In 2024, the twenty-seventh batch of students was admitted to the undergraduate programme. At the end of the first semester, 37 students opted for B.Sc. in Mathematics and Computer Science. The second year B.Sc. class has 28 students in Mathematics and Computer Science and the third year B.Sc. class has 28 students. Out of the 39 students of the 2021 batch who took their degrees at the convocation in July 2024, several have been placed in very prestigious institutions.

- Aakash Yadav
Master of Business Administration, University of Delhi
- Abdul Aleem Khan
Sr. Technical Account Manager, Hilti India
- Aditi Muthkhod
- Ankit Gayen
Informatique: Concepts et Applications, École Normale Supérieure de Lyon

- Apratim Ghosh
Applied Mathematics and Statistics, École Polytechnique, Institut Polytechnique de Paris
- Aryan Kusre
MSc Computer Science, Chennai Mathematical Institute
- Avinash Rathore
MSc Mathematics, Chennai Mathematical Institute
- Ayan Nath
PhD Mathematics, Massachusetts Institute of Technology
- Bijayan Ray
MSc Computer Science, Chennai Mathematical Institute
- Ishan Banerjee
- Ishita Pethkar
Masters in Statistics, University of North Carolina at Chapel Hill
- Madhav C S
M1 MPRI Foundations of Computer Science, École Polytechnique, Institut Polytechnique de Paris
- Milan Paul
M1 Mathematics, Paul Sabatier University, Toulouse
- Neelabjya Das
MSc Mathematics, Chennai Mathematical Institute
- Rajdeep Ghosh
- Riddhi Ram Sonney
- Rishabh Sharma
ALGANT Master Program in Mathematics, Leiden University
- Rishav Gupta
PhD Computer Science, National University of Singapore
- Rishikesh Srinivasan
Predoctoral researcher, Google DeepMind

- Ritabrata Bhattacharyya
Integrated PhD, Tata Institute of Fundamental Research
- Rohan Goyal
PhD Computer Science, Massachusetts Institute of Technology
- Romit Roy Chowdhury
MSc Computer Science, Chennai Mathematical Institute
- Rooptak Mazumder
MSc Mathematics, Chennai Mathematical Institute
- Saptarshi Sadhukhan
Teaching Faculty, Cheenta
- Sankalp Sundar
M1 J.Hadamard, Mathematics, Université Paris Saclay
- Satya Sreevani BH
MSc Computer Science, Chennai Mathematical Institute
- Shrimadhi Srikanth
ALGANT Program, University of Regensburg (24–25), University of Padova (25–26)
- Shubh Sharma
MSc Computer Science, Chennai Mathematical Institute
- Snehansu Bhowmick
Data Analyst, JerseySTEM
- Siddhant Shah
MS in Applied Data Analytics, Boston University
- Soham Chatterjee
Integrated PhD Computer Science, Tata Institute of Fundamental Research
- Sougata Panda
MSc Mathematics, Indian Statistical Institute Kolkata
- Soumil Baksi
MSc Computer Science, Chennai Mathematical Institute
- Soumyadeep Paul
IPhD, Tata Institute of Fundamental Research
- Srijan Chakraborty
MSc Computer Science, Chennai Mathematical Institute

- Subhranil Deb
MSc Mathematics, Chennai Mathematical Institute
- Sufaid Saleel
Integrated PhD Mathematics, Indian Institute of Science
- Swaminathan Rajagopalan
MSc Mathematics, University of Münster
- V Ram Madhav

B.Sc. (Hons.) Mathematics and Physics

Of the 43 students admitted to the undergraduate programme in 2024, 6 students opted for B.Sc. in Mathematics and Physics as the end of the first semester. The second year class has 3 students. The third year class has 8 students. Out of the 6 students of the 2021 batch who took their degrees at the convocation in July 2024, several have been placed in very prestigious institutions.

- Adhvik Jagannathan
M1 General Physics, University of Paris-Saclay
- Anand Balivada
PhD Physics, University of Illinois Urbana-Champaign
- Bhavya Sangwan
Master of Statistics, Indian Statistical Institute
- Shubham Kumar
MSc Mathematics, International School for Advanced Studies
- Naveensurya V

M.Sc. Mathematics

In 2024, 5 students have joined the programme. There are 5 students in the second year of the programme. 6 students who joined the programme in 2022 have completed the programme successfully.

- Aniruddha Bhattacharjee
Math Quality Engineer, LNW (Light & Wonder) Solutions India Private Limited

- Advait Hemant Phadnis
PhD Mathematics, Queen's University Belfast
- Atharva Sachin Raje
PhD Mathematics, Michigan State University
- Padwal Bhavesh Devdatta
- Sumantha K S
PhD Mathematics, Pennsylvania State University
- Ujjwal Kiran Das

M.Sc. Computer Science

In 2024, 20 students have joined the programme. There are 15 students in the second year of the programme. 21 students who joined the programme in 2022 have completed the programme successfully.

- Allen Joseph
PhD Computer Science, Université Libre de Bruxelles, Belgium
- Arghyadip Chakraborty
MS by Research (CSE), Indian Institute of Technology Bombay
- Arunava Gantait
PhD, École Polytechnique, Institut Polytechnique de Paris
- Bhaskar Pandey
Systems Engineer, Tata Consultancy Services
- Harsh Arora
Senior Software Engineer, LTIMindtree
- Krishnan D
- Nabin Kumar Sahoo
PhD Computer Science, Institute of Science and Technology Austria
- Paarth Iyer
Consultant / Research Assistant / Research Intern, Algolabs / CMI / Jio AICoE

- Pradyot Mohanty
Operations Research Scientist, Lyric
- Rishi Garg
Analyst, Bank of New York
- Sampad Kumar Kar
Associate Data Scientist, IDFC First Bank
- Saptarshi Sahoo
Junior Research Scholarship, Indian Statistical Institute
- Saswata Mukherjee
PhD Computer Science, National University of Singapore
- Satvinder Singh
PhD Computer Science, Purdue University
- Shourjya Basu
Graduate Analyst, Barclays
- Shree Ganesh S J

- Shrinidhi T S
PhD Computer Science, LaBRI, Université de Bordeaux
- Shubhankar Varshney
Doctoral Student, Purdue University
- Siddhant Chaudhary
Research Assistant, Indian Institute of Technology Delhi
- Somnath Bhattacharjee
PhD Computer Science, University of Toronto
- Syed Aslah Ahmad Faizi
Operations Research Scientist, Lyric

M.Sc. Data Science

In 2024, fourth batch of 38 students joined the programme. There are 54 students in the second year of the programme. 47 students who joined the programme in 2021 have completed the programme successfully.

- Abhishek Chakraborty
PhD Statistics, The Pennsylvania State University
- Abhishek Mishra
Data Scientist, o9 Solutions
- Abhishek Sharma
Business Analyst 4, Barclays Global Services Private Limited
- Adarsha Mondal
Data Engineer, Michelin
- Akash Das
Data Scientist, Michelin
- Aniket Saha
Data Scientist, Google
- Anjan Mondal
Data Scientist, o9 Solutions
- Anna Maria K V
Executive Data Scientist, Synergy Marine Group
- Anurag Dey
Quant Analyst, Bank of America
- Anuraj Kashyap
Associate Developer, Karomi Technology Private Limited
- Anusha R
Analyst, Bank of America
- Anvesha Paul
AI Analyst, Accenture
- Arvind Raghavendran
Program Associate, Wells Fargo
- Bhumika Dilip Chawla
Associate, Bank of New York
- Deepmalya Dutta
Data Scientist, Wells Fargo
- D Siva Manoj
Associate Data Scientist, IDFC First Bank

- Mohit Kumar Jain
Program Associate, Wells Fargo
- Muhammed Jassim
Analyst, Tiger Analytics
- Nidhi
Decision Science Analyst, Accenture
- Pawan Kumar
Data Science Intern, Pfizer
- P Keshavan
Data Scientist, Google
- Praveen Kumar
Data Analyst, Tiger Analytics
- Rohan Karthikeyan
Associate Data Scientist, Strand Life Sciences
- Roudranil Das
Data Scientist, Kantar
- Saikat Bera
Associate, Risk and Compliance, BNY
- Samriddha Adhikary
Ind & Func AI Decision Science Analyst, Accenture
- Sanjay Kumar Sinha
Data Scientist, Michelin
- Sarvesh Bhandary
Quantitative Analyst, Wells Fargo
- Sayantan Mondal
Data Scientist, Synergy Maritime Private Limited
- Sayantika Sengupta
Data Engineer, Michelin
- Shashi Bhushan Singh
Data Scientist, Synergy Marine Group
- Shreyam Banerjee
Head of the Department – Maths, Sciastra

- Shreyan Chakraborty
Natural Language Processing – Machine Learning Engineer, LTIMindtree
- Shubhangi Sanyal
Analyst, American Express
- Sneha K K
Program Associate, Wells Fargo
- Soham Sengupta
Data Scientist, Shree Cement Limited
- Souradeep Das
Data Scientist, o9 Solutions
- Subhashree Saha
Program Associate, Wells Fargo
- Sulagna Barat
Data Scientist, Synergy Marine Group
- Swastika Mohapatra
Data Scientist, Google
- Thorave Akshay Dada
Instructor, MIT Engineering College
- Tanmoy Paul
Data Analyst, Tiger Analytics
- Tyagi Mahir
Machine Learning Engineer, Hexaware
- Ujan Dasgupta
Specialist, Michelin
- Vaishali Agarwal
Risk Graduate Analyst, Barclays
- Varun Pramod Agrawal
Analyst, Tiger Analytics
- Vinodh M Chincholi
Data Scientist, Google
- Sarvesh Pravin Bhandary
Data Scientist, Wells Fargo

PhD Mathematics, 2024

- Jagadish Pine
Postdoctoral Researcher, Tata Institute of Fundamental Research
- Malay Mandal
Postdoctoral Fellowship, The Institute of Mathematical Sciences

PhD Physics, 2024

- Sayantani Datta
Rising Scholar Postdoctoral Researcher, University of Virginia
- Shanmugapriya Prakasam
Postdoctoral Fellowship, International Centre for Theoretical Sciences

Convocation

The 21st Annual Convocation of CMI was held on 27 July 2024. Degrees were awarded to 130 successful candidates at various levels. Of these, 48 were B.Sc. candidates, 74 were M.Sc. candidates and 4 were Ph.D. candidates. Prof. Spenta R. Wadia, Founding Director & Infosys Homi Bhabha Professor, International Centre for Theoretical Sciences, Tata Institute of Fundamental Research was the Chief Guest and delivered the convocation address.

For the B.Sc. programmes, the CMI Gold Medal of Excellence was awarded to Ayan Nath in Mathematics and Computer Science and Adhvik Jagannathan in Mathematics and Physics for his outstanding performance at the undergraduate level. For the M.Sc. programmes, the CMI Gold Medal of Excellence was awarded to Atharva Sachin Raje in Mathematics, Rohan Karthikeyan in Data Science and Nabin Kumar Sahoo in Computer Science.

12 Student Activities

Undergraduate Internships

- Aditi Mishra
 - did internship at Chennai Mathematical Institute under Prof. Prajakta Nimbhorkar on “Network Reliability” during May – July 2024.
 - did internship at Chennai Mathematical Institute under Prof. Prajakta Nimbhorkar on “Research Reading Project on Cut Enumeration ” during June – December 2024.
- Aditya Kannan did internship at Chennai Mathematical Institute under Prof. Prajakta Nimbhorkar on “Matroids” during April – November 2024.
- Gautham S Viswanathan did internship at Laboratoire Bordelais de Recherche en Informatique under Dr. Frédéric Herbretau and Dr. Igor Walukiewicz on “Partial Order Reductions for Context Sensitive Communications” during May – July 2024.
- Koushan Saha did internship at Chennai Mathematical Institute under Prof. Amit Kumar Sinhababu on “Cryptography and Information Theory” during May – July 2024.
- Krishanu Bandyopadhyay
 - did internship at Indian Institute of Technology Madras under Dr. Bijoy Krishna Das on “Centre for Programmable Photonics Integrated Circuit & Systems (CoE-CPPICS) Lab Internship in Photonic Quantum Computing and Neuromorphic Processor ” during July – December 2024.
 - did internship at Chennai Mathematical Institute under Prof. K.V. Subrahmanyam on “Reinforcement Learning and Application in Protein Folding and Structure Prediction.” during May – July 2024.
 - did internship at Indian Institute of Technology Madras under Dr. Krishna Jagannathan on “Research Paper in Decoherence Modelling and Noise Simulation in Quantum Communication.” during April – December 2024.
 - did internship at Indian Institute of Science under Prof. Srinivasan Raghavan on “Summer School in Semiconductor Technology and Microfabrication” during June 2024.
 - did internship at Chennai Mathematical Institute under Prof. Partha Mukhopadhyay on “Quantum Computing and Quantum Information Theory Reading Project” during August – December 2024.

- Malay Devashish did internship at Jawaharlal Nehru Centre for Advanced Scientific Research under Prof. Santosh Anshumali on “Iterative Eigenvalue Solutions” during May – July 2024.
- Mayur N Sastry did internship at CMI Alumni Internship under Ameya Kamat and Rohit Bhowmick on “AI Evaluation of Subjective Question Answer” during May – July 2024.
- Priyangshu Ghosh did internship at Indian Institute of Science Education and Research Bhopal under Prof. Kuntal Roy on “Topological Machine Learning” during May – July 2024.
- Rishav Gupta did internship at Laboratoire Bordelais de Recherche en Informatique under Dr. Adrian Tanasa and Dr. Yassine Hamoudi on “Quantum Algorithms and Markov Chain Monte Carlo” during May – July 2024.
- Rohan Goyal did internship at Research Institute on the Foundations of Computer Science- Paris Cité University under Dr. David Saulpic on “Randomized and Sampling algorithms for clustering problems” during May – June 2024.
- Ryan Hota did internship at Indian Institute of Technology Delhi under Prof. Vaishnavi Sundararajan on “Intuitionistic Logic SAT Solver” during December 2024.
- Shrimadhi Srikanth did internship at University of Nice, Cote d’Azur under Prof. Jeremy Toulisse on “Introductory Hyperbolic Geometry - Mostow Rigidity Theorem” during May – July 2024.
- Soham Chatterjee did internship at Indian Institute of Technology Bombay under Prof. Rohit Gurjar on “Isolation Lemma and Polyhedral Combinatorics” during May – July 2024.
- Vardhan Kumar Ray
 - did internship at Indian Institute of Technology Kanpur under Prof. Nitin Saxena on “Polynomial Identity Testing: ROABPs” during May – June 2024.
 - did internship at AlgoLabs under Mr. Sudhir Kumar on “Task Automation using LLM Agents” during May – August 2024.

Graduate student Internships

- Aalekhya Mukhopadhyay
 - did internship at Tata Consultancy Services Research & Innovation Kolkata under Dr. Sounak Dey on “Energy-efficient 2D data processing on Neuromorphic Hardware” during May – July 2024.

- did internship at Hewlett Packard under Mr. Joseph Ajitha on “Model to assess and compare print outputs” during March – May 2025.
- Aishvarya S
 - did internship at Indian Institute of Technology Bhilai under Dr. Gagan Raj Gupta on “Time Series Analysis for Root Cause Identification: Insights from OpenTelemetry Data” during May – August 2024.
 - did internship at HP Inc. (Hewlett-Packard) under Mr. Sudhindra Venkatesh Kulkarni on “Perfect Output for printers” during March – June 2025.
- Alok Dhar Dubey
 - did internship at French Institute of Pondicherry under Dr. Ramesh Kumar on “Idol Identification” during May – July 2024.
 - did internship at French Institute of Pondicherry under Prof. Ramesh Kumar on “Idol Identification” during May – July 2024.
- Ananya Kaushal did internship at Bank of New York Mellon under Mr. Avinash on “Graph based techniques for Suspicious activity detection” during May – June 2024.
- Aniket Tiwari did internship at Agilisium Consulting under Mr. Edward Dennis Praveen on “Client Interaction Trainer - GenAI project” during May – August 2024.
- Anjan Mondal did internship at Metamotion under Mr. Wolf Wadehn on “Image Recognition for Nozzle Centering” during May – August 2024.
- Aritra Majumder did internship at National University of Singapore under Prof. Divesh Aggarwal on “Hamiltonian Path Problem and Its Hardness in Fine-Grained Complexity” during May – August 2024.
- Aritra Majumder did internship at Google Summer of Code under Mr. Carlos Córdova Sáenz on “Migrate Problem Creator to Vue.js + Typescript” during May – October 2024.
- Aryansh Raj Saxena did internship at Algolabs under Mr. Chandra Sekar on Enhanced Filter Pruning Based on “High, Relevance Between Activation Maps and Class and Labels for Efficient Deep Learning Models” during May – July 2024.
- Arka Roy did internship at Tata Consultancy Services - Research under Dr. Titas Bera on “On Orbit Autonomous Docking & Servicing of Tumbling Satellites Using a Space Manipulator” during May – July 2024.
- Aryan Kusre did internship at L’Universite Toulouse III -Paul Sabatier under Prof. Fulvio Gesmundo on “Debordering and closed models in algebraic complexity theory” during May – July 2024.

- Avinash Rathore did internship at Australian National University under Anand Deopurkar on “Future Research Talent Program 2024” during May – July 2024.
- Bibek Paul did internship at Tata Consultancy Services under Dr. Mayank Mishra on “Prompt Fine Tuning for GenAI Based Projects” during May – July 2024.
- Bhavesh Devdatta Padwal did internship at Indian Institute of Science Education Research Bhopal under Dr. Dheeraj Dattatray Kulkarni on “Elementary Symplectic Topology and Mechanics ” during May – July 2024.
- Bhuvnesh Sahu did internship at Algolabs under Mr. Prasun Agarwal on “Data Science Internship” during May – July 2024.
- Bhuvnesh Sahu did internship at Algolabs under Dr. Prasun agarwal on “Real Time Crack Detection ” during May – July 2024.
- Chandranath Bhattacharya did internship at Indian Institute of Technology Madras under Dr. Jayakrishnan M on “Data Science Internship” during May – August 2024.
- Chenna Sai Sandeep did internship at Shree Cement Ltd. under Mr. Aviral Suri on “Actionable Alerts for Solar Power” during May – July 2024.
- Deepanshu Mittal did internship at Coriolis Technologies under Mr. Sudhir Kumar and Mr. Rohan Nanode on “Data Science Internship” during May – July 2024.
- Dharmi did internship at Research Internship under Dr Chandrashekhar on “Drift detection task” during May – August 2024.
- Divyanshi Kumari did internship at Coriolis Technologies under Mr. Sudhir Kumar and Mr. Rohan Nandode on “Developing a subjective Q/A generator and evaluator” during May – July 2024.
- Divyanshi Kumari
 - did internship at Coriolis Technologies under Mr. Sudhir Kumar on “ Subjective QA& grading automation ” during May – July 2024.
 - did internship at Coriolis Technologies under Mr. Sudhir Kumar on “Differential privacy - adding noise to bert embedding ” during January – April 2025.
- Esha Bhattacharya did internship at Screenit Labs under Mr. Puviarasane Sarangapani on “Data analysis and developing a neural network to detect cheating in online interviews.” during May – July 2024.
- Gauranga Kumar Baishya
 - did internship at Harvard Medical School, Boston, USA under Prof. Yu-Hua Tseng on “Deconvolution Analysis of Bulk RNA seq data using Machine Learning ” during May – August 2024.

- did internship at V One Technologies under Mr. Venkat Rachuri on “Web Analytics (Online)” during May – July 2024.
- Hiba AP did internship at Manage Art Works under Mr. Vilva Natarajan on “GDS Mapping” during May – August 2024.
- Himanshu did internship at Roni Analytics LLP under Mr. Koustav Chakraborty on “Blockchain Data Analytics” during May – August 2024.
- Keshav Kumar did internship at AlgoLabs under Prof. K.V Subrahmanyam on “Tyre Defect detection using AI/ML” during May – July 2024.
- Mayank Nagar did internship at Indian Institute of Technology Bhilai under Dr. Gagan Raj Gupta on “Data Visualization and Distributed Anomaly Detection” during May – November 2024.
- Nandini Jaiswal did internship at Chennai Mathematical Institute under Mr. Sudhir Kumar and Mr. Rohan Nandode on “Web UI Automation” during May – July 2024.
- Narendra C did internship at Indian Institute of Technology Madras under Dr. Jayakrishnan M on Analysis of level of questions posed on “Q&A sites using SOLO Taxonomy” during May – August 2024.
- Nooh Ali did internship at Agilisium Consulting Pvt Ltd under Mr. Edward on “Client Interview Trainer using Agentic AI” during May – August 2024.
- Om Hrishikesh Ambaye did internship at Shree Cement Limited under Mr. Aviral Suri on “Freight Analyser Decision Support System” during May – July 2024.
- Pritam Padhan did internship at AlgoLabs under Mr. Ameya Kamat on “Automate Descriptive Questions Answers Evaluation” during May – August 2024.
- Salokya Deb did internship at Algotabs under Mr. Rebhu Johymalyo Josh on “Person Re-Identification in Secure Campus” during May – July 2024.
- Satyaki Mullick did internship at Algotabs under Mr. Shrish Trivedi on “Factor Investing in Stock Market” during May – July 2024.
- Sattik Biswas did internship at XKDR Forum under Dr. Ayush Patnaik and Dr. Bhargavi Shah on “Extracting Metadata from court orders using LLMs” during June – July 2024.
- Sayantani Saha did internship at Algotabs under Dr. K.V. Subrahmanyam on “Tyre Defect Detection using AI/ML” during May – July 2024.
- Shouvik Ghosh did internship at Coriolis under Mr. Sudhir Kumar on “Detecting Phishing using LLMs” during May – August 2024.

- Shubh Sharma
 - did internship at ENS Paris-Saclay under Prof. Thomas Chatain on “Conformance Checking and Model Repair of Time Aware Petri Nets” during May – July 2024.
 - did internship at ENS Paris-Saclay under Dr. Thomas Chatain on “Model Repair and Conformance Checking of Time Aware Models” during May – July 2024.
- Snehansu Bhowmick did internship at Sorbonne University under Prof. Christophe Cornut on “Fourier analysis in number fields and Hecke’s Zeta function and Class field theory” during May – June 2024.
- Soumya Dasgupta did internship at SciAstra under Mr. Akhil Tripathy on “Data Analyst” during May – July 2024.
- Soumyajoy Kundu did internship at Reserve Bank of India, Chennai under Dr. Dipika Das on “Impact of The Reserve Bank of India’s Liquidity Management on USD/INR Exchange Rates: Time Series and Machine Learning Perspectives” during May – July 2024.
- Srijan Chakraborty did internship at University of Lorraine under Prof. Marc Pouget and Prof. Vincent Despre on “Bowyer’s Algorithm for Delaunay Triangulation on Hyperbolic Surfaces” during May – August 2024.
- Suneet N Patil did internship at Indian Institute of Technology Kanpur under Prof. Nitin Saxena on “Algebraic Circuit Reconstruction” during June 2024.
- Vikas Chaudhary did internship at Algolabs and Chennai Mathematical Institute under Mr. Chandrashish on “Safeguarding Large Language Models with Guardrails ” during May – July 2024.

Student Exchange Programs

Interaction with graduate students from Ecole Normale Supérieure

Chennai Mathematical Institute has an agreement with the Ecole Normale Supérieure in Paris, France, one of the leading institutions in the world for teaching and research in Mathematics. This agreement provides for regular exchange visits by academic members of CMI and ENS, Paris. This includes, in particular, exchanges of visits by undergraduate students between the two institutions.

Every year, the top three students passing out from the B.Sc. Mathematics programme spend 8 weeks at the ENS, where they work on research projects with the ENS faculty. In May–June 2024, Rohan Goyal, Sankalp Sundar, Ayan Nath and Snehansu Bhowmick visited the ENS.

Interaction with graduate students from Ecole Polytechnique

Chennai Mathematical Institute has an agreement with the Ecole Polytechnique in Paris, France, one of the leading institutions in the world for teaching and research in Physics.

13 Undergraduate/Graduate Courses

August–November 2024

| | |
|---|------------------------------------|
| Advanced Concurrent Programming | : K Narayan Kumar |
| Algorithmic Coding Theory I | : Sumanta Ghosh |
| Algorithmic Coding Theory II | : Sumanta Ghosh |
| Applied Data Analytics | : Y Chandramouli |
| Algebraic Geometry I | : V Balaji/Suhas B N |
| Algebraic Groups | : S Senthamarai Kannan |
| Algorithmic Game Theory | : Sushmita Gupta |
| Algebra I | : Aditya Karnataki |
| Algebra III | : Siddhi Pathak |
| Design and Analysis of Algorithms | : Prajakta Nimbhokar |
| Advanced Machine Learning | : Pranabendu Misra |
| Analysis I | : Upendra Kulkarni |
| Analysis II | : Clare D’Cruz |
| Algorithms for Structured Matrices and Polynomials-I | : Chandra Kanta Mahapatra |
| Algorithms for Structured Matrices and Polynomials-II | : Amit Sinhababu |
| Computational Algebraic Geometry | : Amit Kumar Singh |
| Calculus II | : Sukhendu Mehrotra |
| Commutative Algebra | : Manoj Kummini/Kanoy Das |
| Combinatorial Group Theory | : P Sankaran |
| Intro to Compact Lie Groups and Representations | : V Balaji |
| Classical Mechanics I | : Amitabh Virmani |
| Classical Mechanics | : H S Mani |
| Graduate Complex Analysis | : Purusottam Rath/Rashi Lunia |
| Introduction to Cryptography | : V Arvind |
| Creative Writing-Fiction and Poetry | : K Srilata |
| Dynamic Graph Algorithms | : Prajakta/Pranabendu/Samir |
| Electrodynamics | : K G Arun |
| English | : Usha Mahadevan |
| Fourier Analysis | : M Sundari |
| Fluid Dynamics | : Govind Krishnaswami |
| Foundations of Machine Learning | : K V Subrahmanyam |
| Graduate Algebra I | : Manoj Kummini/Amit Roy |
| Graduate Analysis I | : R Srinivasan/Dwaipayana Mazumdar |

| | |
|---|--|
| German I | : Pavithra Ravishankar |
| Geometric Group Theory | : Tanushree Shah |
| Graduate Mathematical Toolkit I | : K V Subrahmanyam |
| Graduate Algorithms | : Samir Datta |
| Graduate Topology I | : Anwesh Ray/Koushik Brahma |
| Intro to Algebraic Automata Theory | : K Narayan Kumar |
| Intro to Concurrent Programming | : K Narayan Kumar |
| Introduction to Modular Forms | : B Ramakrishnan/Pratiksha Shingavekar |
| Mathematical Logic | : M Praveen |
| Mathematical Methods-Analysis | : Priyavrat Deshpande |
| Measure Theoretic Probability | : B V Rao |
| Natural Language Processing | : Ramseshan Ramachandran |
| Proofs and Types | : S P Suresh |
| Probability and Statistics with R | : Sourish Das |
| Programming and Data Structures with Python | : Madhavan Mukund |
| Introduction to Programming (Haskell) | : S P Suresh |
| Quantum Computing | : Partha Mukhopadhyay |
| Quantum Mechanics I | : Bala Sathiapalan |
| Quantum Mechanics | : Alok Laddha |
| RDBMS and SQL | : Madhavan Mukund |
| Regression and Classification | : Sourish Das |
| Set Theory | : S P Suresh |
| SGA3 | : Patrick Polo |
| Statistical Inference I | : V Swaminathan |
| Statistical Mechanics | : K Narayan |
| Software Verification and Analysis | : V Srivas |
| Timed Automata | : B Srivathsan |
| Theory of Computation | : C Aiswarya |
| Thermal Physics | : V V Sreedhar |
| Time Series Analysis | : M R Srinivasan |
| Intro to Urban Studies | : Loraine Kennedy |
| Visualization (2 credits) | : Sourish Das |
| Values Through Literature | : Usha Mahadevan |

January–April 2025

| | |
|---|--|
| Algorithm Design Techniques | : Philip Geevarghese |
| Algebraic Geometry II | : Krishna Hanumanthu |
| Algebra and Computation | : Amit Sinhababu/V Arvind |
| Algebra II | : Clare D’Cruz |
| Algebra IV | : Upendra Kulkarni |
| Applied Machine Learning | : Raghav Kulkarni |
| Algebraic Number Theory | : Purusottam Rath |
| Advanced Programming | : Ramaseshan Ramachandran |
| Arithmetic Dynamics | : Anwesh Ray |
| Commutative Algebra II | : Saipriya Dubey/Kamalesh Saha |
| Calculus I | : Sundari Maddala |
| Complex Analysis | : P Sankaran |
| Classical Mechanics II | : Amitabh Virmani |
| Complexity Theory | : Partha Mukhopadhyay |
| Computational Topology and Geometry | : Siddharth Pritam |
| Computer Vision | : Kavita Sutar |
| Distributed Computing and Big Data | : Venkatesh V |
| Differential Equations | : Manoj Kummini |
| Discrete Mathematics | : Amit Sinhababu/V Arvind |
| Data Mining and Machine Learning | : Madhavan Mukund |
| Data Quality and Data Privacy | : M Chandramouli |
| Econometrics | : Mohammad Arshad Rahman |
| Electrodynamics I | : H S Mani |
| Topics in Formal Methods and Machine Learning | : M K Srivas |
| Finite Model Theory | : K Narayan Kumar |
| Financial Model using Python | : Mousum Dutta/Rajeeva Karandikar |
| Graduate Algebra II | : S Senthamarai Kannan/Buddhadev Hajra |
| Graduate Analysis II | : B V Rao |
| German II | : Pavithra Ravishankar |
| Guided Project | : M R Srinivasan |
| General Relativity | : Aradhita Chattopadhyaya |
| Graduate Topology II | : Sukhendu Mehrotra/Bidhan Paul |
| Intro to Gen AI | : Dinesh Krithivasan/Pranabendu Misra |
| Intro to Gravitational Wave Astronomy | : K G Arun |
| Intro to Lie Algebra Representations | : Neha Malik/Upendra Kulkarni |
| Introduction to Linguistics | : M Usha |
| Introduction to Martingales | : Rajeeva L Karandikar |

| | |
|---|-------------------------------|
| Intro to Mathematical Finance | : Himalaya Senapati |
| Linear Algebra and its Applications | : Kavita Sutar |
| Logic, Automata and Games | : M Praveen |
| Linear Programming and Combinatorial Optimization | : B Srivathsan |
| Introduction to Manifolds | : V Balaji |
| Mathematical Physics | : Govind Krishnaswami |
| Theory of Modular Forms of Half-integral Weight | : B Ramakrishnan |
| Multivariate Statistics | : M R Srinivasan |
| Networking Fundamentals | : Y Chandramouli |
| Optics | : G Date |
| Optimization in Industry | : Abhik Giri |
| Partial Differential Equations | : Mythily Ramaswamy |
| Programming Language Concepts | : Madhavan Mukund/S P Suresh |
| Probabilistic Number Theory | : Siddhi Pathak/Shivani Goel |
| Probability Theory | : R Srinivasan |
| Quantum Field Theory | : Alok Laddha |
| Quantum Information Theory | : Ronak Soni |
| Quantum Mechanics II | : Bala Sathiapalan |
| Randomized Algorithms | : K V Subrahmanyam |
| Semisimple Lie Algebras | : Neha Malik/Upendra Kulkarni |
| Statistical Inference II | : V Swaminathan |
| Topics in Algorithms | : Prajakta Nimbhorkar |
| The Art of Short Fiction | : M Usha |
| Text Analytics | : Ramaseshan Ramachandran |
| Topology | : Aditya Karnataki |
| Toric Varieties | : Bivas Khan/Mohit Upamanyu |
| Topics in Riemannian Geometry | : T R Ramadas |
| Topics in String Theory and Holography | : K Narayan |
| Weighted Automata and Transducers | : Aiswarya Cyriac |

14 Special Lectures

- Pritthijit Biswas: Picard groups of some compact complex manifolds (April 2024).
- Senthamarai Kannan: Some recent results related to Bott-Samelson-Demazure-Hansen varieties (April 2024).
- Pritthijit Biswas: A Reconstruction theorem of Bondal and Orlov (April 2024).
- Parthapratim Mahapatra: Discovery of a ‘lower mass gap’ black hole by LIGO (April 2024).
- Rishi Garg: Bayesian Portfolio Optimization for Option Writers (April 2024).
- Rajesh Manna: On smoothness of Hilbert scheme on a smooth surface (April 2024).
- Rutuja Vilas Sawant: Shellable flag simplicial complexes via chordal graphs (April 2024).
- Pranoy Sarkar: On the homology of the Hilbert scheme of points in the plane (April 2024).
- Harsh Vardhan Nahata: On the theory of Cyclotomic Fields (April 2024).
- Bhavesh Padwal: A short introduction to the Hauptvermutung of geometric topology (April 2024).
- Atharva Raje: Ribet’s converse to Herbrand’s Theorem (April 2024).
- Dimple: A Data-Driven Approach to Gamma Ray Burst Classification: Unveiling Diversity with Machine Learning (April 2024).
- Siddhi Pathak: On zeros of variants of Ramanujan polynomials (April 2024).
- Krishna Menon: A bijective proof of a partition identity (June 2024).
- Rajeeva Karandikar: Importance of Statistics in the Era of Data Science (August 2024).
- Shivani Goel: On the Hardy-Littlewood k-tuple prime conjecture and convolutions of Ramanujan sums (August 2024).
- Rajeeva Karandikar: Prisoner’s dilemma and Cooperation (September 2024).
- Parthapratim Mahapatra: Implications of gravitational recoil for astrophysics and fundamental physics (September 2024).
- Siddhi Pathak: A conjecture of Erdos on non-vanishing of $L(1,F)$ (September 2024).

- V. Balaji: An introduction to Fuchsian groups (September 2024).
- Siddhi Pathak: A conjecture of Erdos on non-vanishing of $L(1,F)$ (September 2024).
- Mohit Upmanyu: Generalizing Gurjar's Hyperplane section theorem (September 2024).
- V. Balaji: Bruhat-Tits group schemes II (September 2024).
- Arkadev Ghosh: GIT quotient of Hessenberg variety modulo one dimensional torus (October 2024).
- B Srivathsan: Deterministic Suffix-reading Automata (October 2024).
- Prajakta Nimbhorkar: Bipartite Matching with Fairness Constraint (October 2024).
- Amit K Sinhababu: Derandomizing Multivariate Polynomial Factoring for Low Degree Factors (October 2024).
- M Praveen: Formal Verification of Pipelined Moonshot State Machine Replication Protocol (October 2024).
- C. Aiswarya: Edit Distance of Finite State Transducers (October 2024).
- Partha Mukhopadhyay: Trading determinism for noncommutativity in Singularity testing (October 2024).
- Samir Datta: USSR is in P/Poly (October 2024).
- S. P. Suresh: Insecurity for protocols with assertions (October 2024).
- Mandayam Srivas: Automated Property Directed Self Composition (PDSC) (October 2024).
- K V Subrahmanyam: Orbit closures through stabilizer limits & intermediate varieties (October 2024).
- Krishna Menon P: Subsequence frequency in binary words (October 2024).
- Rutuja Vilas Sawant: Vertex decomposable simplicial complexes and their Stanley-Reisner ideals (October 2024).
- Aisha Negi: Automorphism Group of B (October 2024).
- Sadhanandh Vishwanath B: A q-analogue of the combinatorial category FI (October 2024).
- Cyril J Jacob: Strength and Hartshorne's conjecture in high degree (October 2024).
- Preeti: Irrationality of zeros of the digamma function (October 2024).

- Pranoy Sarkar: The Formal Functions Theorem and some applications (October 2024).
- Khushbu Gulati: Fundamental Group of the Hawaiian Earring (October 2024).
- Suhita Hazra: Algebraic numbers close to both 0 and 1 (October 2024).
- Harsh Vardhan Nahata: Class Field Theory (October 2024).
- Dwaipayan Mazumder: Trigonometric sums over primes (October 2024).
- Priyavrat Deshpande: Topology of permutation patterns (October 2024).
- Cyril Jacob: Rationality of Seshadri Constants on Blow ups of Hirzebruch Surfaces (October 2024).
- V. Balaji: Bruhat-Tits Theory III (November 2024).
- Neha Malik: Universal Stiefel-Whitney Classes for Special Linear Groups (November 2024).
- Aditya Karnataki: Families of (φ, τ) -modules (November 2024).
- Ronak M. Soni: Minimal Areas from Entangled Matrices (November 2024).
- Rashi Lunia: Common divisors of totients of polynomial sequences (November 2024).
- Anwesh Ray: Modular Galois representations with large Selmer p -rank (February 2025).
- Shivani Goel: Explicit Deuring–Heilbronn phenomenon for Dirichlet L-functions (March 2025).
- Kamalesh Saha: Square-free powers of Cohen-Macaulay simplicial forests (March 2025).
- Suhas B N: On Butler’s Conjecture and some related results (March 2025).
- Kaustav Giri: Aharonov-Bohm Scattering From Knots (March 2025).

15 Data Science Colloquium Series

- Arjun Beri, Wells Fargo: Introduction to Counterparty Credit Risk Modelling and the Challenges (April 2024)
- Maunish Baravila and Anirudh Bhashyam: Statistics and Machine Learning in Protein Design (April 2024)
- Rajeeva Karandikar, CMI: Importance of Statistics in the Era of Data Science (August 2024)
- Anantha Karthik R, Sedin Technologies, Chennai: Optimizing Warehouse Slotting and Replenishment to Minimize Human Labor (August 2024)
- Utkarsh Siddu, Hewlett-Packard: AI for Data Engineering (September 2024)
- Sujit K. Sahu, University of Southampton: Bayesian Modeling of Spatio Temporal Data with R (October 2024)
- Sudeep Shukla, CEO, Environment Pollution Analysis Lab: Data Analytics for Climate Modeling: Focusing on Extreme Events (October 2024)
- Karthik Ranganathan and Naveen Chandramohan, ITUS Capital, Chennai: From gut feeling to data-driven: redefining investment strategies (October 2024)
- Varun Ramanathan, Indexnine Technologies: Ventures in AI: An Indexnine Journey (January 2025)
- Rakhi Singh, IIT Madras: Subdata selection: Introduction and Recent Works (February 2025)

16 Conferences/Workshops/Schools

| Sl. No. | Date of the Programme | Name of the Programme | Description |
|---------|-------------------------------------|---|--|
| 1 | 15–18 & 20 April 2024 | Quantum Computing Semester | Part of CMI's semester-long initiative on quantum computing, this workshop explored foundational and emerging topics in the field. It brought together students and experts for intensive sessions on quantum algorithms, computation, and information theory. |
| 2 | 12–30 May 2024 | International Mathematical Olympiad Training Camp (IMOTC) | This camp trains India's top mathematics students for the International Mathematical Olympiad, focusing on advanced problem-solving techniques, mathematical thinking, and international competition readiness. |
| 3 | 20–23 May 2024 | Symplectic Geometry Workshop | Aimed at young researchers, this workshop introduced key ideas in algebraic, symplectic, and differential geometry. Participants explored modern techniques and applications in a collaborative environment. |
| 4 | 24 May 2024 | Research Science Initiative Programme | A collaborative programme by PSBB, IIT Madras, Sastra University, and CMI offering selected students mentorship and exposure to scientific research in a structured environment. |
| 5 | 31 May, 3, 5, 7 and 10 June 2024 | Effective Bounds in Commutative Algebra | This series covered Dube's bound on Gröbner bases, Kollár's effective Nullstellensatz, the Hochster–Ananyan theorem and bounds for regularity and projective dimension. |
| 6 | 3–8 June 2024 | International Olympiad in Informatics Training Camp (IOITC) | Organized by IARCS, this camp prepares top school students in algorithms and programming to represent India at the International Olympiad in Informatics (IOI). |

| Sl. No. | Date of the Programme | Name of the Programme | Description |
|---------|-----------------------|---|---|
| 7 | 17–29 June 2024 | NCM Derived Categories Workshop | This workshop introduced derived categories of sheaves on algebraic varieties, focusing on semi-orthogonal decompositions, with connections to birational and algebraic geometry. |
| 8 | 8–9 July 2024 | Madhava Mathematics Competition – Nurture Camp | Honouring Madhava’s legacy, this camp encourages mathematical exploration among students through problems and history connected to early calculus and astronomy. |
| 9 | 19–20 July 2024 | CMI–NASI Lecture Programme (XI–XII Students) | Organised with the National Academy of Sciences, this programme delivered mathematics and science lectures to higher secondary students at CMI. |
| 10 | 1–14 December 2024 | EGMO Training Camp | This camp prepares young female students for international mathematics competitions, encouraging their participation and confidence in the STEM fields globally. |
| 11 | 9–13 December 2024 | BIRS Quantum Workshop | A collaborative initiative by CMI and BIRS (Canada), this workshop provided a platform for advanced discussions in quantum science and interdisciplinary applications. |
| 12 | 9–20 December 2024 | BIRS Network Workshop | Backed by NSERC, NSF, and Alberta’s Education, this workshop focused on strengthening global mathematical collaboration and knowledge exchange. |
| 13 | 15–29 December 2024 | AIS School Workshop | Advanced Instructional Schools (AIS) offer PhD-level courses for students trained in Foundation Schools, covering in-depth topics over 18 working days. |
| 14 | 17–21 December 2024 | StatFin24 Workshop & Conference | Jointly hosted by CMI, ISI, and ISBIS, this workshop brought researchers together to discuss cutting-edge statistical methods in financial applications. |
| 15 | 13–17 January 2025 | BIRS: Machine Learning and Statistics From Theory to Practice | Co-hosted by CMI and BIRS, this workshop focused on theoretical and applied aspects of machine learning and statistics, enabling cross-disciplinary collaboration. |

17 CMI Arts Initiative

The objective of the CMI Arts Initiative is to provide a space for students, professionals and anybody else keenly interested in the humanities and arts to interact and learn from experts in these areas. The CMI Arts Initiative is coordinated by K. Srilata, K.V. Subrahmanyam, and Madhavan Mukund. The following programmes were held:

- Sriram V gave Arts Initiative talk on “Carnatic Music — where next?” in April 2024.
- Kombai S Anwar gave Arts Initiative talk on “Dravidian Islamic Architecture” in April 2024.

18 Endowment Lectures at CMI

- Meena Mahajan, Institute of Mathematical Sciences, Chennai delivered K. Lakshmanan Memorial Distinguished Lecture on “The complexity of computation, of communication, and of proofs” (April 2024).
- Abhishek Dhar, ICTS Bangalore delivered R.K. Rubugunday Distinguished Lecture on “Evolution of a blast in a cold gas: From Newton to Euler and Navier-Stokes-Fourier” (April 2024).
- Shiraz Minwalla, TIFR Mumbai delivered K. Lakshmanan Memorial Distinguished Lecture on “Bose Fermi duality in 3 dimensions” (February 2025).
- Milind Sohoni, CTARA, IIT Bombay delivered R.K. Rubugunday Distinguished Lecture on “Sustainability - Data, Models and Pedagogy” (February 2025).

19 Conferences, Visits and External Lectures

C. Aiswarya

- Visited Azim Premji University in December 6 - 8, 2024 and gave talks.
- Visited TIFR in December 10 - 11, 2024 and gave talks.
- Visited IIT Bombay in December 8 - 13, 2024.

Amrutha P

- Visited Digital University of Kerala in May 2024 and gave talks.
- Visited Institute of Algebra and Number Theory University of Stuttgart in June - July 2024 and gave talks.

Aradhita Chattopadhyaya

- Visited Indian Association for Cultivation of Sciences in September - October, 2024.
- Visited Institute of Mathematical Sciences in November 2024 and gave talks.
- Visited ICTS Bangalore in March 2024.
- Visited IISc Bangalore in March 2024.

Amitabh Virmani

- Visited Mahidol University in June 2024 and gave talks.
- Visited IIT Gandhinagar as Scholar-in-Residence in May and gave talks.
- Visited ICTS Bangalore in October 2024 and gave talks.
- Visited IISc Bangalore in early 2025 and gave talks.
- Visited IIIT Allahabad in early 2025 and gave talks.
- Visited NISER Bhubaneswar in early 2025 and gave talks.
- Visited IOP Bhubaneswar in early 2025 and gave talks.

Bidhan Paul

- Visited IIT Madras in December 2024 and gave talks.
- Visited Indian Institute of Technology Kharagpur in September 2024 and gave talks.

Clare D'cruz

- Visited NCM Workshop on Trends in Commutative Algebra in June 2024.
- Visited Conference on Local rings and Singularities at IIT Bombay in June 2024 and gave talks.

Utsab Ghosal

- Visited Niser Bhubaneswar in February 2024 and gave talks.
- Visited IIT Gandhinagar in December 2024.

Gopal Yadav

- Visited The Institute of Mathematical Sciences in November 4 - 8, 2024 and gave talks.
- Visited Indian Institute of Technology Ropar in December 9 - 14, 2024 and gave talks.
- Visited Yukawa Institute for Theoretical Physics, Kyoto University in October 28 - November 01, 2024 and gave talks.
- Visited Okinawa Institute of Science and Technology Graduate University in October 21 - 25, 2024.

Govind Krishnaswami

- Visited T R Vishnu at Raman Research Institute, Bengaluru in July 2024.
- Visited Himalaya Senapati at HSBC Bengaluru in July 2024.
- Visited Gandhigram Rural Institute, Dindigul, Tamil Nadu in September 19 - 22, 2024 and gave talks.
- Visited T R Vishnu at Raman Research Institute in 26 September - 1 October, 2024.
- Visited Himalaya Senapati at HSBC Bengaluru in 28 September - 1 October, 2024.

- Visited Cochin University of Science and Technology, Kochi in October 24 - 25, 2024 and gave talks.
- Visited Chennai Strings Meeting, ISc Chennai in November 4 - 8, 2024 and gave talks.
- Visited Panjab University in November 25, 2024 and gave talks.
- Visited T R Vishnu at Raman Research Institute in December 5 - 12, 2024.
- Visited Himalaya Senapati at HSBC Bengaluru in December 6 - 9, 2024.
- Visited Sri S. Ramasamy Naidu Memorial College, Sattur, Tamil Nadu in March 17 - 23, 2025 and gave talks.
- Visited Bharathidasan University, Tiruchirappalli, CNSD 2025 in March 9 - 13, 2025 and gave talks.

H. S. Mani

- Visited Padmavathy Engineering College in August 22, 2024 and gave talks.
- Visited KF School in August 16, 2024 and gave talks.
- Visited Gandhigram Rural Institution in February 26 - 28, 2025 and gave talks.
- Visited Government Arts Science College, Melur in March 6 - 8, 2025 and gave talks.

Kaustav Giri

- Visited Indian Institute of Science Education and Research Kolkata(IISER Kolkata) in December 18 - 21, 2024.

K G Arun

- Visited IIT Bombay in April 2024.
- Visited IISER Kolkata in December and gave talks.
- Visited BITS Pilani in early January 2025.
- Visited IIT Madras in early March 2025 and gave talks.
- Visited NIT Trichy late February 2025 and gave talks.

Koushik Brahma

- Visited IIST Trivandrum in July 1 - 12, 2024 and gave talks.
- Visited Indian Institute of Technology Madras in December 16 - 20, 2024 and gave talks.

Krishna Hanumanthu

- Visited University of Missouri-Columbia, USA in September 28 - 29, 2024 and gave talks.
- Visited University of Nebraska-Lincoln, USA in August - December 2024 and gave talks.
- Visited Washington University, St Louis, USA in October 31 - November 1, 2024 and gave talks.
- Visited University of Utah, Salt Lake City, USA in October 18 - 22, 2024 and gave talks.
- Visited IISER Mohali in March 17 - 19, 2025 and gave talks.
- Visited Kerala School of Mathematics in March 10 - 14, 2025 and gave talks.
- Visited Shiv Nadar University in February 10 - 14, 2025 and gave talks.

Mandayam Srivas

- Visited Computer Science Department, IIT Delhi in May 15 - 22, 2024 and gave talks.
- Visited University of California, Berkeley, USA in November 8 - 19, 2024 and gave talks.

Manoj Kummini

- Visited IIT Bombay in early June.
- Visited University of Madras in December 2024 and gave talks.
- Visited IIT Madras in December 2024 and gave talks.

Usha Mahadevan

- Visited Airports Authority of India in May 10, 2024 and gave talks.
- Visited Sri Aurobindo Society, Chennai in September 21, 2024 and gave talks.
- Visited Airports Authority of India in September 4, 2024 and gave talks.
- Visited National College, Tiruchirappalli in August 22, 2024 and gave talks.
- Visited Airports Authority of India in November 22, 2024 and gave talks.
- Visited Airports Authority of India in November 20, 2024 and gave talks.
- Visited S A College of Arts and Science in March 12, 25 and gave talks.
- Visited Airports Authority of India in March 7, 2025 and gave talks.
- Visited Sri Devi College of Arts and Science in February 28, 2025 and gave talks.

K. Narayan

- Visited TIFR String Theory Group, Mumbai in May 2024 and gave talks.
- Visited “Quantum information, quantum field theory and gravity” workshop/conference, ICTS Bangalore in August - September, 2025 and gave talks.
- Visited IIT Kanpur String Group in March 2025 and gave talks.

Priyavrat C Deshpande

- Visited International Center for Theoretical Sciences, Bengaluru in early December.
- Visited Bhaskaracharya Pratishtan, Pune in mid-September and gave talks.

Poulami Dutta Roy

- Visited University of Southampton, UK in June 2024 and gave talks.
- Visited University of Nottingham, UK in June 2024 and gave talks.
- Visited Cardiff University, Wales, UK in June 2024 and gave talks.
- Visited University of Glasgow, Scotland, UK in June 2024 and gave talks.
- Visited University of Birmingham, UK in June 2024 and gave talks.

Pratiksha Satish Shingavekar

- Visited MIT in July 2024 and gave talks.
- Visited IISER Pune in January 17 - 19, 2024.

Rajeeva L. Karandikar

- Visited TCG Crest, Kolkata in November 2024.
- Visited King's College, London in October 2024 and gave talks.

Amit Roy

- Visited Graphic Era Hill University, Bhimtal Campus in May 2024.
- Visited IIT Bombay in June, 2024.

Siddhi Sudhir Pathak

- Visited NIT Calicut in June 10-14, 2024 and gave talks.
- Visited Fields Institute, Toronto, Canada in May 3 - June 3, 2024 and gave talks.
- Visited IISER Pune in December 8 - 14, 2024 and gave talks.
- Visited Pontificia Universidad de Chile in November 1 -10, 2024 and gave talks.
- Visited RIMS Kyoto in October 10 - 20, 2024 and gave talks.
- Visited IISER Tirupati in February 13 - 15, 2025 and gave talks.
- Visited IISER Pune in January 17 - 19, 2025 and gave talks.
- Visited KSOM in January 3 - 5, 2025 and gave talks.

Sourish Das

- Visited XKDR in June 2024.
- Visited SPJain School of Management in June 2024 and gave talks.

M. Sundari

- Visited IIT Kanpur in November 7 -11, 2024 during Prof. Pertti Mattila's visit.
- Visited IISc, Bangalore in 15 -18 December, 2024 during Prof. Malabika Pramanik's visit.

Tanushree Shah

- Visited IISER Bhopal in July 2024 and gave talks.
- Visited IIT Bhuvaneshwar in mid-December 2024 and gave talks.
- Visited NISER Bhuvaneshwar in mid-December 2024 and gave talks.
- Visited IISER Mohali in December beginning and gave talks.
- Visited IIT Palakkad in February 3 - 8, 2024 and gave talks.
- Visited BTW conference in March 9 - 14, 2025 and gave talks.
- Visited ISI Kolkata in January 12, 2025 and gave talks.
- Visited IIT Madras in January 29, 2025 and gave talks.
- Visited University of Regensburg in March 2 - 7, 2025 and gave talks.

Trung Chau

- Visited IIT Madras in December 2 - 14, 2024.
- Visited IIT Madras in February 2025 and gave talks.

Vishwa Prakash H V

- Visited UNSW, Sidney in May 2024 and gave talks.
- Visited IISc in November 2025 and gave talks.

20 Other Professional Activities

C. Aiswarya

- Program Committee member of Highlights of Logic, Games and Automata
- Executive Committee member of the Association for Logic in India (ALI)
- Member, Board of Studies, Computer Science and Engineering, Anna University
- Program Committee Co-chair of ICLA 2025
- Program committee co-chair of Indian Conference of Logic and Applications (ICLA 2025)
- Program committee of FOSSACS 2025

Amit Kumar Sinhababu

- Gave a talk in a seminar organised by PhD students at CMI
- Gave a talk on multipoint evaluation of polynomials to the IOI training camp participants.

Amitabh Virmani

- Taught a course as a Scholar-in-Residence at IIT Gandhinagar.
- Delivered a TNSF outreach lecture

B.V. Rao

- Studied applications of Reproducing Kernel Hilbert Spaces
- Studied probability in Banach spaces

Chandra Kanta Mohapatra

- Gave a talk at IMSc on Polynomial Composition Problem
- Teaching Algebra and Computation

Clare D’cruz

- Editorial Board member of Mathematics Student
- Editorial Board member of the Indian Journal of Pure and Applied Mathematics
- Editorial Board member of IJPA

Gopal Yadav

- Poster presentation at the Okinawa Institute of Science and Technology Graduate University in the workshop “Quantum Extreme Universe: Matter, Information, and Gravity”
- Talk at the Indian Institute of Technology Ropar in the conference “National Strings Meeting, 2024”
- Delivered a talk titled “Communicating Multiverses in Holographic de-Sitter Braneworld” in the conference “Cosmology from Home 2024”
- Delivered an invited talk at Pontificia Universidad Católica de Valparaíso, Valparaíso, Chile in Gravtalks (journal club) titled “Communicating Multiverses in Holographic de-Sitter Braneworld” (online)

Govind Krishnaswami

- Delivered lectures on Classical Mechanics in the Summer Program for Padma Seshadri Bala Bhavan School students, CMI, from May 7–9, 2024.
- Delivered a guest lecture on KAM theory
- Reviewing articles for journals
- Writing a book on Classical Mechanics

H. S. Mani

- Guided an M.Sc. student semester project.
- Delivered a lecture on Spherical Trigonometry to school students
- Delivered a lecture on Physics of Information to school students
- Orbital and spin angular momentum of light.

K G Arun

- Co-led a document that was submitted to ISRO on a possible space-based decihertz detector.
- Invited talk on LISA science at IIT Kanpur given virtually
- Invited to a meeting to discuss Deci Hertz science at IISER Kolkata
- Member of the Board of Studies in Physics, Anna University
- Member of the IGWN committee of LVK collaboration
- Member of the Space Science Roadmap formulation committee, Splinter group on gravity and cosmology
- Panelist on gender issues in the IAGRG meeting at BITS Pilani
- SOC member of the GR25 meeting
- Attended the IAGRG meeting at BITS Pilani as a council member

Krishna Hanumanthu

- Gave a talk on “Bounded Negativity Conjecture” at Kerala School of Mathematics, March 11, 2025
- Gave a talk on “Introduction to Seshadri constants” at Ramanujan Institute for Advanced Study, January 29, 2025
- Gave a talk on “Seshadri constants on blow ups of ruled surfaces” at Shiv Nadar University, February 12, 2025
- Gave a talk on “Some questions on Seshadri constants” at KUMUNU 2024 conference, University of Missouri-Columbia, USA, September 29, 2024
- Gave a talk on “Some recent results on Seshadri constants” at University of Utah Commutative Algebra seminar, October 18, 2024
- Gave a talk on “Some recent work on Seshadri constants” at IISER Mohali on March 17, 2025
- Gave a talk on “The interpolation problem in algebraic geometry” at University of Nebraska Mathematics colloquium, October 11, 2024
- Conducted four online sessions on plane curves and Bézout’s theorem for Maths Circle India in April and May 2024

Krishna Menon P

- Attended and gave a contributed talk at the Combinatorial Methods in Enumerative Algebra program held at ICTS
- Attended and gave a contributed talk at the International Conference on Enumerative Combinatorics and Applications, 2024
- Attended and presented a poster at the Second Meru Combinatorics Conference in GEHU, Bhimtal

Kamalesh Saha

- Reviewing research articles for certain journals

Sukhendu Mehrotra

- Gave a short course at the AIS workshop “Cohomology of Commutative Algebras” in December 2024
- Referee for Journal of Algebra

Mandayam Srivas

- Hosted Dr. Sumanth Prabhu from TCS Research for 2 days on October 28 – 29, 2024, for discussions on research collaborations.
- Presented a seminar at UC Berkeley on Automatic Property Directed Self-Composition for k-safety Verification
- Student Srinidhi Nagendra successfully completed his PhD Defense on December 19, 2024

Manoj Kummini

- Gave a talk to high-school Students at Sri Sankara Vidyalaya, Urakappam
- Organized a workshop ‘Effective bounds in commutative algebra’ in CMI
- Co-organizer of the International Conference on Local Rings and Singularities, IIT Bombay
- Lectured at the NCM workshop “Derived Categories and Semi-Orthogonal Decomposition”, CMI

Usha Mahadevan

- Helping students stage plays
- Learning free hand drawing
- Learning Tiruppavai, the devotional songs of Andal
- Teaching Tamil to non-Tamils
- Attending book club meetings
- Giving online talks on Sri Aurobindo at the meetings of Sri Aurobindo Society
- Learning Nalayira divya prabandam
- Learning about the temples of South India and their Sthalapuranams
- Studying the different classical dance forms in India
- teaching Tamizh to non Tamizhs

Priyavrat C Deshpande

- Helped start the first Math Circle at Chennai
- Participated in setting the Madhava Mathematics Competition 2025
- Visited D.A.V. Schools, Chennai for student interactions
- Participated in setting problems for the Madhava Mathematics Competition 202

Prajakta Nimbhorkar

- Invited speaker at Indo-Spanish school at PSG College Coimbatore
- Invited speaker in ICRTMS at Jalgaon
- Program Committee for IJCAI 2025 (AI for social good track)
- Program Committee of EC 2025

Pratiksha Satish Shingavekar

- Co-taught a course 'Introduction to Modular Forms'
- Learned coding in Python

- Worked on ML and Python programming

B Ramakrishnan

- Gave a special talk at IISER Kolkata in February 2025
- Gave an invited talk in the conference on recent advances in mathematics and related areas at SRMAP university in January 2025

Purusottam Rath

- Taught an elective course on the distribution of primes
- Taught an elective on Algebraic number Theory

Siddhi Sudhir Pathak

- Presented at the SCHOLAR 2 conference at Fields Institute
- Referee for Math Student
- Refereed papers for IJPA, PMSC, RNT
- Reviewed papers for MathSciNet
- Trained students for INMO at PS Senior Secondary School, Chennai
- Co-organizer of the CMI-IMSc number theory seminar
- Referee for IJPA, Ramanujan journal, Mathematics Student, etc.
- Reviewer for MathSciNet

Sumanta Ghosh

- Attended an IndiCS seminar themed on “Continuous methods in discrete optimization and complexity”
- Jointly wrote a proposal for Google India Research Award
- Reviewed papers for FSTTCS 2024, SOSA 2025, ISAAC 2024
- Taught Algorithm Coding Theory (ACT) II
- Taught Second Half of Algebra and Computation Course

- Teaching Algorithmic Coding Theory I
- Writing a paper on our recent results with respective co-authors

M. Sundari

- Gave a talk and outreach at Government Degree College, Tuni, Andhra Pradesh on December 21, 2024: Origami: An Introduction
- Gave a talk and outreach at Loyola English Medium School, Tuni on December 20, 2024
- Gave a talk and outreach at Maharaja's College, Vizianagaram, Andhra Pradesh on November 15, 2024: Amazing Applications of Fourier Series (as part of IWM Visitors Programme)
- Gave a talk and outreach at SPACES Degree College, Payakaraopeta, Andhra Pradesh on December 20, 2024: Origami and Mathematics: A Child's Play

Tanushree Shah

- Guided a bachelor's student from Central University of Tamil Nadu
- Outreach for students from IMJnK
- TA for Combinatorial Group Theory

Trung Chau

- Refereed one journal paper

Vishwa Prakash H V

- Gave two lectures at the Theory CS Winter School, IISc Bangalore
- Invited speaker at the post conference workshop on Algorithmic Mechanism Design, FSTTCS, IIT Gandhinagar
- Reviewed for Social Choice and Welfare, Nature (journal)

21 Visitors

- Mihir Vahanwala, Max Planck Institute for Software Systems (MPI-SWS), Saarbrücken, Germany. Gave a talk on “On the Monadic Second-Order Theory of Arithmetic Predicates” (April 2024)
- Bhargav C S, Indian Institute of Technology Kanpur. Gave a talk on “Learning the coefficients: A presentable version of border complexity and applications to circuit factoring” (April 2024)
- Abhishek Dhar, International Centre for Theoretical Sciences (ICTS), Bangalore. Gave a talk on “Evolution of a blast in a cold gas: From Newton to Euler and Navier-Stokes-Fourier” (April 2024)
- Meena Mahajan, Institute of Mathematical Sciences, Chennai. Gave a talk on “The complexity of computation, of communication, and of proofs” (April 2024)
- Steven Spallone, Indian Institute of Science Education and Research Pune. Gave a talk on “Stiefel-Whitney Classes of Representations” (April 2024)
- Vaibhav Krishnan, Indian Institute of Technology Bombay. Gave a talk on “New Lower Bounds for Symmetric Boolean Functions” (April 2024)
- Dhruv Ranganathan, University of Cambridge. Gave a talk on “Gromov-Witten theory via degenerations” (April 2024)
- Somnath Chakraborty, Ruhr University Bochum, Germany. Gave a talk on “Learning mixture of Gaussians: a noisy coupon collector’s problem” (April 2024)
- Soumya Adhikari, Indian Institute of Science Education and Research Thiruvananthapuram. Gave a talk on “ $N=2$ conformal supergravity in five dimensions” (April 2024)
- Praveer Tiwari, Indian Institute of Technology Bombay. Gave a talk on “Journey to the Center of the Neutron Star” (April 2024)
- Abhishek Samanta, The Ohio State University, USA. Gave a talk on “Strongly Interacting and Disordered Quantum Systems” (April 2024)
- Debangshu Mukherjee, Asia Pacific Center for Theoretical Physics (APCTP), Pohang, South Korea. Gave a talk on “Emergent factorization of Hilbert space at large N and black hole” (May 2024)
- Srijan Sarkar, Indian Institute of Science Bangalore. Gave a talk on “Analytic model for contractions on Hilbert spaces and Toeplitz operators” (May 2024)

- Girish Varma, International Institute of Information Technology Hyderabad. Gave a talk on “Safe and Efficient Semantic Segmentation for Road Scenes” (May 2024)
- Manas Mandal, Institute of Mathematical Sciences, Chennai. Gave a talk on “Cohomology of generalized Dold spaces” (May 2024)
- Tousif Islam, Kavli Institute for Theoretical Physics (KITP), University of California, Santa Barbara, USA (June 2024)
- Purba Das, King’s College London. Gave a talk on “Invariance of Stochastic integrals, and some related isomorphism” (June 2024)
- Suparna Sen, University of Calcutta. Gave a talk on “Celebrating Women in Mathematics as part of May 12th Initiative at CMI” (June 2024)
- Dale Cutkosky, University of Missouri, USA. Gave a talk on “Why is resolution of singularities so hard in characteristic p ?” (June 2024)
- Hema Srinivasan, University of Missouri, USA. Gave a talk on “On a Question of Wilf and Related Problems” (June 2024)
- Anamay Tengse, National Institute of Science Education and Research (NISER), Bhubaneswar. Gave a talk on “Read-once Algebraic branching programs and commuting matrices” (June 2024)
- Gunjan Kumar, National University of Singapore. Gave a talk on “Distribution Testing in the Small Sample Regime” (June 2024)
- Himalaya Senapati, HSBC Global Technology, Bengaluru (June 2024)
- Shubham Saha, University of California, San Diego, USA (June 2024)
- Debaditya Raychaudhury, University of Arizona, USA (June 2024)
- Gaurav Patil, University of Toronto, Canada (June 2024)
- Saikat Banerjee, Rutgers, The State University of New Jersey, USA (July 2024)
- Sunil Chebolu, Illinois State University, USA (July 2024)
- N. V. Krishnendu, International Centre for Theoretical Sciences - Tata Institute of Fundamental Research (ICTS-TIFR), Bangalore (July 2024)
- Ganesh Bagler, Infosys Centre for Artificial Intelligence, Indraprastha Institute of Information Technology Delhi (IIIT-Delhi). Gave a talk on “Computational Gastronomy: A Data-driven Science of Food” (July 2024)
- Uma Girish, Princeton University, USA. Gave a talk on “Fourier Growth for Communication Protocols for XOR functions” (July 2024)

- Yogesh Kumar Srivastava, National Institute of Science Education and Research (NISER), Bhubaneswar (July 2024)
- Prashant Gade, Rashtrasant Tukadoji Maharaj Nagpur University. Gave a talk on “Transitions to Absorbing state: Non-DP transitions” (July 2024)
- Erick Ivan Duque Gonzalez, Pennsylvania State University, USA (July 2024)
- Martin Bojowald, Pennsylvania State University, USA (July 2024)
- Vishnu V. Narayan, Tel Aviv University, Israel. Gave a talk on “Advances and Challenges in Fair Division: Quantiles, Subsidies, and Randomization” (July 2024)
- Subhodip Bandyopadhyay, National Institute of Science Education and Research (NISER), Bhubaneswar (July 2024)
- Julius Julius, Harish-Chandra Research Institute, Prayagraj. Gave a talk on “Introduction to Quantum Spectral Curve” (July 2024)
- Nika Sokolova, King’s College London. Gave a talk on “CFT analysis of N=4 Super Yang Mills at Strong Coupling” (July 2024)
- Nava Gaddam, International Centre for Theoretical Sciences (ICTS), Bangalore (July 2024)
- Vishnu Narayan, Tel Aviv University, Israel (July 2024)
- Sayan Mukherjee, Université Libre de Bruxelles, Belgium. Gave a talk on “Greybox Learning of Languages Recognizable by Event-Recording Automata” (August 2024)
- Aniket Patra, Institute for Basic Science, Daejeon, South Korea. Gave a talk on “Dynamical Chaos in Nonequilibrium Cooper Pairing” (August 2024)
- Jayakumar Ravindran, Institute of Mathematical Sciences, Chennai. Gave a talk on “Boundedness of Left Regular Representations in the Two-Sided GJS Construction” (August 2024)
- Ajit Kumar Mehta, University of California, Santa Barbara, USA. Gave a talk on “New binary black hole mergers from the public LIGO-Virgo O3 data” (August 2024)
- Dianthe Basak, Université Pierre-et-Marie-Curie, France. Gave a talk on “Finite Sets, Infinite Sets, and the Rest of Us: A Sampler of the Joys of Choiceless Mathematics” (August 2024)
- Patrick Polo, Institut de Mathématiques, Université Pierre-et-Marie-Curie, Paris, France (August 2024)

- Sumegha Garg, Rutgers, The State University of New Jersey, USA. Gave a talk on “A new information complexity measure for streaming algorithms” (August 2024)
- Akash Sengupta, University of Waterloo, Canada. Gave a talk on “Uniform bounds on Sylvester-Gallai type configurations of polynomials” (August 2024)
- Saurav Holme Choudhury, Institute of Mathematical Sciences, Chennai. Gave a talk on “A criteria for rationality of moduli of chains” (August 2024)
- Urbasi Sinha, Raman Research Institute, Bangalore. Gave a talk on “Light, Camera, Quantum” (August 2024)
- Suprajo Das, Indian Institute of Technology Bombay (August 2024)
- Sreejata Kishor Bhattacharya, Tata Institute of Fundamental Research, Mumbai (August 2024)
- Arnab Kundu, University of Toronto, Canada. Gave a talk on “Grothendieck-Serre Conjecture for Parahoric Group Schemes” (August 2024)
- Subhajit Barman, Indian Institute of Technology Madras (September 2024)
- Sucheta Majumdar, École Normale Supérieure, Lyon, France. Gave a talk on “Light-cone approach to asymptotic symmetries” (September 2024)
- Sourav Maji, Indian Institute of Technology Bhubaneswar (September 2024)
- Arundhati Goldar, Indian Institute of Technology Mandi (September 2024)
- Roopayan Ghosh, University College London, United Kingdom. Gave a talk on “Correlations and entanglement in quantum many-body systems: detection, computation and applications” (September 2024)
- Soumya Adhikari, Indian Institute of Science Education and Research Thiruvananthapuram (September 2024)
- Varun Narasimhachar, Nanyang Technological University and Institute for High Performance Computing, Singapore (September 2024)
- Suprateek Kundu, MD Anderson Cancer Center, USA (September 2024)
- Youssouf Oualhadj, Université Paris-Est Créteil, France (September 2024)
- Pinaki Banerjee, Institute of Physics, Bhubaneswar (September 2024)
- Pratik Roy, University of the Witwatersrand, Johannesburg, South Africa (October 2024)

- Vipul Arora, National University of Singapore. Gave a talk on “Outlier Robust Multivariate Polynomial Regression” (October 2024)
- Veera Venkata Narayana, Indian Institute of Technology Madras. Gave a talk on “Equivalence classes, solitary patterns and cubic graphs” (October 2024)
- BharatRam Rangarajan, Université catholique de Louvain, Belgium (October 2024)
- Naveen Prabhakar, International Centre for Theoretical Sciences, Bangalore (October 2024)
- Sumanth Prabhu, Tata Consultancy Services Research. Gave a talk on “Weakest Precondition Inference for Linear Array Programs” (October 2024)
- Aritra Ghosh, Indian Institute of Technology Bhubaneswar. Gave a talk on “Aritra Ghosh” (October 2024)
- Ayush Patnaik, XKDR Forum, Mumbai (October 2024)
- K V Raghavan, Indian Institute of Science, Bangalore (October 2024)
- Blesil T K, Central University of Gujarat (October 2024)
- Naveen Prabhakar, International Centre for Theoretical Sciences, Bangalore (October 2024)
- Annu Jalais, Krea University. Gave a talk on “Understanding tigers from the islanders’ point of view: ethnographic accounts from the Sundarbans” (November 2024)
- Ranjani Seshadri, Boston College, United States. Gave a talk on “Explorations in Topological Quantum Matter In and Out-of Equilibrium” (November 2024)
- Ashrujit Ghoshal, Carnegie Mellon University, United States. Gave a talk on “Bridging the Theory and Practice of Cryptography” (November 2024)
- Jagannath Santara, Indian Institute of Technology Madras. Gave a talk on “Two approaches to the holomorphic modular bootstrap” (November 2024)
- Tiju Cherian John, University of Arizona, United States. Gave a talk on “Ulrich subvarieties and non-existence of low rank Ulrich bundles on complete intersections” (November 2024)
- Aditya Nema, RWTH Aachen University, Germany (November 2024)
- Air Marshal S. Varthaman (Retired), Indian Air Force. Gave a talk on “Advanced Weapon Systems in the Indian Air Force” (November 2024)
- Sourav Roychowdhury, Institute of Mathematical Sciences, Chennai. Gave a talk on “Counting Black Holes as Algebraic Varieties” (November 2024)

- Keerthan, Tata Consultancy Services Innovation Labs, Pune (November 2024)
- Virginie Gaillard, Institute of Mathematics of the Romanian Academy, Bucharest, Romania (November 2024)
- Chandrima Kayal, Institute of Mathematical Sciences, Chennai (November 2024)
- Kyveli Doveri, University of Warsaw, Poland (November 2024)
- Sayantan Chakraborty, National University of Singapore (December 2024)
- SK Jahanur Hoque, Birla Institute of Technology and Science, Pilani – Hyderabad Campus; Université libre de Bruxelles, Belgium; and Charles University, Prague, Czech Republic (December 2024)
- Arnab Kundu, University of Toronto, Canada. Gave a talk on “Grothendieck-Serre Conjecture for Parahoric Group Schemes” (December 2024)
- Eknath Ghatge, Tata Institute of Fundamental Research, Mumbai (December 2024)
- Priyadarshi Paul, International Centre for Theoretical Sciences, Bangalore. Gave a talk on “The Hilbert space of de Sitter quantum gravity” (December 2024)
- Paul Gustin, Paris-Saclay University, France. Gave a talk on “Modular Descriptions of Regular Functions” (January 2025)
- Ipsita Datta, Swiss Federal Institute of Technology Zürich, Zürich. Gave a talk on “Doing Morse theory without Smale condition” (January 2025)
- Ratish Surendran Puduppully, IT University of Copenhagen. Gave a talk on “Title: A Tutorial on Mamba” (January 2025)
- Bonny Banerjee, University of Memphis, United States of America. Gave a talk on “SELP: A framework for implementing the perception-action loop in an AI agent” (January 2025)
- Indranil Mukhopadhyay, University of Nebraska, Lincoln (January 2025)
- Baskar Balasubramanyam, Indian Institute of Science Education and Research Pune. Gave a talk on “Congruences and integral periods for GL_3 over imaginary quadratic fields” (January 2025)
- Ananyo Kazi, UniDistance Suisse. Gave a talk on “Twisted triple product p-adic L-function for finite slope families and a p-adic Gross-Zagier formula” (January 2025)
- Sourav Chakraborty, Indian Statistical Institute Kolkata. Gave a talk on “Assessing the Quality of Binomial Samplers: A Statistical Distance Framework” (January 2025)

- Lucas Lorieau, Université Clermont Auvergne, France (January 2025)
- Florent Foucaud, Université Clermont Auvergne, France (January 2025)
- Diveyesh Solanki, Indian Institute of Information Technology Allahabad (January 2025)
- Anamay Tengse, National Institute of Science Education and Research Bhubaneswar (January 2025)
- Fred Diamond, King’s College London. Gave a talk on “Effective and minimal cones of weights for Hilbert modular forms (joint with P. Kassaei)” (January 2025)
- V. Gayathri, University of Wisconsin-Milwaukee. Gave a talk on “Discovering Extraordinary Black Hole Mergers and their Origin” (January 2025)
- Prakash Saivasan, Institute of Mathematical Sciences, Chennai (January 2025)
- Pratik Roy, University of the Witwatersrand (January 2025)
- Kaustubh Singhi, International Centre for Theoretical Sciences, Bengaluru (January 2025)
- Godwin Martin, International Centre for Theoretical Sciences, Bengaluru (January 2025)
- Rohan Goyal, Massachusetts Institute of Technology, USA. Gave a talk on “Fast list-decoding of univariate multiplicity and Folded Reed-Solomon codes” (January 2025)
- Shaifali Parashar, Laboratory for InfoRmatics and Image Systems, INSA Lyon, France (January 2025)
- Nalini Ravishanker, Department of Statistics, University of Connecticut, Storrs, CT, USA (January 2025)
- Oscar Garcia-Prada, Institute of Mathematical Sciences, Madrid. Gave a talk on “Non-maximal Toledo components” (January 2025)
- Gonçalo Araujo-Regado, Okinawa Institute of Science and Technology, Japan. Gave a talk on “Soft edges: the many links between soft and edge modes” (January 2025)
- Bilyana Tomova, Okinawa Institute of Science and Technology, Japan. Gave a talk on “Soft edges: the many links between soft and edge modes” (January 2025)
- Prahlad Narasimhan Kasthurirangan, Stony Brook University, United States of America. Gave a talk on ” Parsimonious Guarding” (January 2025)
- Sumanta Ghosh, Indian Statistical Institute Kolkata. Gave a talk on ”Characterizing and Testing Principal Minor Equivalence of Matrices”(January 2025)

- Chandramouli Chowdhury, University of Southampton. Gave a talk on “Simplicity of In-In correlators” (January 2025)
- Prashant Kocherlakota, Harvard University, USA. Gave a talk on “The Black Hole Shadow & Beyond” (January 2025)
- S. Arun Kumar, Gandhi Institute of Technology and Management University (January 2025)
- Sounak Biswas, University of Würzburg, Germany. Gave a talk on “A classical dimer model with a discrete-scale-invariant fixed point” (January 2025)
- Banashree Baishya, Indian Institute of Technology Guwahati (January 2025)
- Ayan Mukhopadhyay, Institute of Physics, Pontifical Catholic University of Valparaíso, Chile (January 2025)
- Supragyan Priyadarshinee, Indian Institute of Science Education and Research Mohali. Gave a talk on “Thermodynamics of topological Dyonic hairy black holes and interplay of QNMs at the phase transition” (February 2025)
- Alapan Mukhopadhyay, École Polytechnique Fédérale de Lausanne. Gave a talk on “Recent developments in numerical invariants in prime characteristic commutative algebra” (February 2025)
- Hidenori Sonoda, Kobe University, Kobe, Japan. Gave a talk on “Lectures on the exact renormalization group (ERG)” (February 2025)
- Shubham Jaiswal, Indian Institute of Science Education and Research Pune. Gave a talk on “Root Clusters”(February 2025)
- Anirban Majumdar, Université Libre de Bruxelles, Belgium (February 2025)
- Subramanya Hegde, Max Planck Institute, Bonn, Germany. Gave a talk on “Coulomb branch amplitudes as symplectic Grassmannian integrals” (February 2025)
- Francesco Di Cosmo, Free University of Bozen-Bolzano, Italy (February 2025)
- Apratim Ganguly, Inter-University Centre for Astronomy and Astrophysics, Pune. Gave a talk on “Gravitational Lensing of Gravitational Waves” (February 2025)
- Soumya Adhikari, Indian Institute of Science Education and Research Thiruvananthapuram. Gave a talk on “Some Novel Perspectives On Conformal Supergravity” (February 2025)
- Sreejith A. V., Indian Institute of Technology Goa. Gave a talk on “Active learning of one counter automata” (February 2025)

- Himanshu Raj, Stony Brook University, United States of America. Gave a talk on “QCD-Gravity double-copy in the Regge regime via shockwave collisions” (February 2025)
- Ananth Shankar, Northwestern University, United States of America. Gave a talk on “Special points on moduli spaces” (February 2025)
- K S Thejaswini, Institute of Science and Technology Austria. Gave a talk on “Resolving nondeterminism with randomness” (February 2025)
- Wadehn Wolf, CEO, TRUMPF Metamation. Gave a talk on “Mathematics in Industrial Machinery at TRUMPF Metamation” (February 2025)
- Aalok Thakkar, Ashoka University. Gave a talk on “Example-guided Synthesis of Relational Queries” (February 2025)
- Suprajo Das, Indian Institute of Technology Madras. Gave a talk on “A density function for the epsilon multiplicity and applications to integral closures” (February 2025)
- Swarnalipa Datta, Indian Statistical Institute Kolkata. Gave a talk on “On Fourier analysis of sparse Boolean functions over certain Abelian groups” (February 2025)
- Shiraz Minwalla, Tata Institute of Fundamental Research, Mumbai (February 2025)
- Milind Sohoni, Department of Computer Science and Centre for Technology Alternatives for Rural Areas, Indian Institute of Technology Bombay (February 2025)
- Vinay Malvimat, Asia Pacific Center for Theoretical Physics, Pohang, South Korea. Gave a talk on “A New Genuine Multipartite Entanglement Measure from Reflected Entropy” (February 2025)
- Areeb Mohammed Shah, University of Innsbruck, Austria. Gave a talk on “Bayesian filtering and Smoothing in Markov categories” (February 2025)
- Nishad Kothari, Indian Institute of Technology Madras. Gave a talk on “A walk through the history and present of Perfect Matchings”(February 2025)
- K V Raghavan, Indian Institute of Science, Bangalore (March 2025)
- Semanti Dutta, S. N. Bose National Centre for Basic Sciences, Kolkata (March 2025)
- Priyadip Mondal, Ben-Gurion University of the Negev, Israel. Gave a talk on “Hidden symmetries of hyperbolic knot complements” (March 2025)
- N. D. Hari Dass, Retired Professor, Institute of Mathematical Sciences, Chennai. Give a series of talks on “Geometry of pure Quantum states as revealed by weak measurements” (March 2025)

- Aswin Govindan Sheri, Indian Institute of Science Education and Research Berhampur. Gave a talk on “Mini Course on Geometric Measure Theory” (March 2025)
- Astha Kakkarq, Indian Institute of Technology Kanpur (March 2025)
- Sreejata Kishor Bhattacharya, Tata Institute of Fundamental Research, Mumbai. Gave a talk on “Aaronson-Ambainis Conjecture is True for Random Restrictions” (March 2025)
- Claus Koestler, University College Cork, Ireland (March 2025)
- Subhodeep Sarkar, Indian Institute of Technology Madras. Gave a talk on “Black Hole Quasinormal Mode Instability: Insights from the Pseudospectrum” (March 2025)
- Dibya Chakraborty, Indian Institute of Technology Madras. Gave a talk on “Exploring Inflation in String Theory: Single-Field vs. Multi-Field Models” (March 2025)