



International Conference on Graphs, Networks and Combinatorics ICGNC 2023

organized by:

Department of Mathematics
Ramanujan College
University of Delhi

10-12 January 2023

CALL FOR PAPERS



Selected Papers after the Peer Review Process will be published
in following Journals :

- AKCE International Journal of Graphs and Combinatorics
- Journal of Interdisciplinary Mathematics
- Advances and Applications in Mathematical Sciences
- More to be added soon



Venue

Ramanujan College
University of Delhi
New Delhi-110019, India



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icgnc2023@ramanujan.du.ac.in

For Registration Visit : <http://icgnc2023.rccon.in>

ABOUT THE CONFERENCE

Combinatorics as a field of mathematics is majorly concerned with problems of selection, arrangement, counting and operation within a finite or discrete system. Graph Theory and Network Theory are subfields of Combinatorial mathematics but due to their dynamic nature and their large applicability in real life, they are being treated as an independent field of mathematics. Graphs or Networks are mathematical structures used to study pairwise relationships between finite or discrete objects. They not only provide mathematical formulation of data related to real life problems but also give a visual representation of the same. A visual representation of data, in the form of graphs, helps us gain actionable insights and make better data driven decisions .

Graph theory is a fertile field of mathematics which is applicable to various other fields of mathematics, sciences, social sciences and even in linguistics. It is being actively used in fields as varied as biochemistry (genomics), electrical engineering (communication networks and coding theory), computer science (algorithms and computation) and operations research (scheduling). Even many modern data science problems are questions about graphs: to understand large social networks, from Facebook and Twitter to LinkedIn and scientific paper citation analysis. Graph theoretic tools have also been fundamental to the development of numerous foundational algorithms from Google Page Rank to Netflix Content Recommendation.

Network Science is an interdisciplinary field with its roots in computer science and graph theory which enables seamless interaction between various disciplines of science and related areas. Network science involves study of complex networks such as telecommunication networks, computer networks, biological networks, cognitive and semantic networks, social networks etc. These intricate networks are formed by encoding the interactions between various components of the system. For example, the cellular network, which is a prerequisite of life, is formed by encoding the interactions between gene, proteins and metabolites; neural network, which is important to study the functioning of the brain, is formed by encoding neuron's connections; social networks, a revolutionary phenomenon of 21st century, is a result of capturing all family, friendship and professional ties. Network science is sometimes called the study of network representations of physical, biological, and social phenomena leading to predictive models of these phenomena.

The purpose of ICGNC 2023 is to bring together people from all branches of mathematics and science with interests in graphs, networks and combinatorial mathematics along with their application to allied fields. This conference is an endeavor to enhance the knowledge and technical skills of faculty and research scholars working in these areas. The proposed conference by the Department of Mathematics, Ramanujan College, will be conducted with the motto to enrich

participants with the latest trends in the field of graph theory, network theory and combinatorics in the light of practical needs and the prospective use of scientific methods to promote the cooperation/collaboration among the academics, researchers and scientists in the arena. The conference aims to cater a platform for discussion of recent advances in the field and also furnish a chance to young researchers to present their work and learn from the experts.

The fields/topics to be covered in this conference include:

- Graphs and hypergraphs
- Network theory
- Combinatorial optimization
- Coding theory
- Block designs
- Combinatorial geometry
- Matroid theory
- Logic
- Computing
- Neural networks and any related topics
- Algorithms and data structures
- Cryptography
- Computational number theory
- The study of randomness

CONFERENCE PROCEEDINGS

Selected papers for Presentation in the Conference will have the chance to be published after Peer-Review process in the Special Issue of the following Scopus Indexed Journals:

- **AKCE International Journal of Graphs and Combinatorics**
(SCIE & SCOPUS INDEXED JOURNAL WITH IMPACT FACTOR)
- **Journal of Interdisciplinary Mathematics**
(ESCI & SCOPUS INDEXED JOURNAL)
- **Advances and Applications in Mathematical Sciences**
(ESCI & UGC LISTED JOURNAL)
- **More to be added Soon**

Note: All submitted papers will be reviewed according to the standard of each journal and some of the journals will invoice article processing charge (APC) for accepted papers.

ACCOMODATION TO OUTSTATION PARTICIPANTS

Outstation Participants (outside of Delhi NCR) will be provided accommodation on triple/quad basis at a nominal additional fee of Rs 1000 (50 USD for International participants) for stay during the conference. No TA/DA will be provided for attending the conference.

TYPE OF PARTICIPATION

We have categorized participants into three categories:

- **Non-Presenters :** Participant who just wishes to attend the conference.
- **Presenters:** Participants who just wish to present a paper in the conference but don't want to publish in the special issues of the conference. Such participants are required to submit an abstract only in the prescribed format and they can present their published work also. They are not required to submit a full paper to the conference.
- **Contributors:** Participants who want to present their original & unpublished work at the conference and wish to publish the same in the special issue of the conference. Such participants are required to submit both abstract and full paper in the prescribed format as per the given deadlines. They are subdivided into two categories:
 - Paper Presenters
 - Poster Presenters

MODE OF PARTICIPATION

- Non-Presenters & Presenters have the option to attend the Programme through ZOOM Platform.
- Contributors are required to attend in Physical Mode.

AWARDS

Best Paper Presentation Award

To encourage young researchers, we are planning to give best paper award of each parallel session during the conference. All the winners will be rewarded with a certificate and a cash prize.

Best Poster Presentation Award

The two most outstanding poster presentations in the conference will be rewarded with a certificate and a cash prize.

Number of participation in Poster Presentation is limited.

REGISTRATION DETAILS

IMPORTANT DATES

For Submissions

Last date for Abstract Submission : December 20, 2022

Notification for Abstract Acceptance : December 28, 2022

Last date for Full Paper Submission : January 05, 2023

For Registrations

Last date for Presenters : December 20, 2022

Last date for Non-Presenters : January 09, 2023

REGISTRATION FEE

For Non-Presenters (Indian National)

Research Scholars/ Student Participants : Rs. 1000

For Faculty / Industry Members : Rs. 2000

For Presenters (Indian National)

Research Scholars/ Student Participants : Rs. 2000

For Faculty / Industry Members : Rs. 3000

For Foreign National (Presenter & Non-Presenter)

100 USD (Hundred US Dollars)

STEPS TO REGISTER

STEP 1: Visit conference website <https://icgnc2023.rccon.in>

STEP 1: Click on “Registration Fee” Tab

STEP 2: Click on “Pay Now” button to pay Registration Fee for the Conference as per your type of participation.

STEP 3: Click on “Print Statement” to download the receipt of the transaction in PDF form.

STEP 4: Fill the Google form for REGISTRATION in "About" section and upload the receipt of the transaction and abstract of your research paper (if presenting).

You may also [CLICK HERE](#) to fill Google Form for Registration.

SPEAKERS AT ICGNC 2023

- **PROF. ANDREAS M. HINZ**, Mathematical Institute LMU Munich, Germany
- **PROF. ANDREA FENOVCIKOVA**, Technical University, Košice Slovakia
- **PROF. ARNFRIED KEMNITZ**, Technical University of Braunschweig, Germany
- **PROF. KIKI A. SUGENG**, Universitas Indonesia, Depok 16424, Indonesia
- **PROF. G.O.H. KATONA**, Alfréd Rényi Institute of Mathematics, Hungary
- **PROF. EVA CZABARKA**, University of South Carolina, United States
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- **PROF. TARKESHWAR SINGH**, BITS Pilani K K Birla Goa Campus, Goa

ABOUT RAMANUJAN COLLEGE

Ramanujan College is a constituent College of the University of Delhi (DU). It is inspired by the life and work of Srinivasa Aiyangar Ramanujan, one of the world's greatest Mathematicians. The College has been accredited Grade "A++" with CGPA 3.71 by the National Assessment and Accreditation Council (NAAC) in its Second Cycle. The score is the highest amongst the colleges of University of Delhi. The college is located in the well-known area of Kalkaji, near Nehru Place, in South Delhi.

The College was established in 1958 as an evening college for boys with just five programmes. Since 2010, Ramanujan College has been expanding and now at present offers sixteen undergraduate programmes in different disciplines. This achievement, in alignment to the recommendations of the National Education Policy (NEP) 2020, makes the College a centre for interdisciplinary studies and research with a future focus on blended learning. It has gradually grown into a self-sufficient and self-reliant institution owing to its academic vigour and intellectual capital.

The College has conducted a Course on Human Rights, Environment and Ethics through its National Resource Centre (NRC), under the Annual Refresher Programme in Teaching (ARPIT) scheme of Ministry of Education (MoE). This

Course was uploaded on MoE's Massive Open Online Course (MOOC) platform SWAYAM and many participants registered for it.

Ramanujan College offers various short-term diploma, certificate, and executive development programmes on contemporary and skill-oriented themes. These are conceived and designed by faculty members in consultation with external experts.



The courses get exceptional response from the students and are conducted throughout the academic session. They are open to alumni and students of all the colleges. Some of these courses support the curriculum, some prepare the students for higher studies and also accelerate the professional growth.

The College is the Study Centre of School of Open Learning (SOL), Non-Collegiate Women Education Board (NCWEB) and Indira Gandhi National Open University (IGNOU) for various courses. As an initiative towards students and teachers exchange programmes, the College has entered into Memorandum of Understanding(s) with foreign universities. It is also working for collaboration with other higher education institutions located in remote areas of the country, under the Vidya Vistar Scheme of the University of Delhi.

The College has acquired many prestigious schemes of University Grants Commission (UGC) and Ministry of Education (MoE), erstwhile Ministry of Human Resource Development (MHRD):

2016

Deen Dayal Upadhyay Centre for Knowledge Acquisition and Upgradation of Skilled Human Abilities and Livelihood (KAUSHAL) under which two vocational courses have started in Banking Operations and Software Development

2017

Teaching Learning Centre (TLC) under the Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMNMTT) scheme in which one lakh beneficiaries have been trained through more than hundred programmes till date

2018

National Resource Centre (NRC) for developing specialized Online and MOOC courses for teachers in the disciplines of Ethics, Human Rights and Environment under the Annual Refresher Programme in Teaching (ARPIT) scheme

The College has two peer-reviewed journal and each publishes one issue annually. The Ramanujan International Journal of Business and Research (ISSN: 2455-5959), is enlisted in UGC-CARE, while International Journal of Applied Ethics (ISSN 2321- 2497) has been in publication since 2010.

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In pursuit of its vision: “Discover, Empower, Transform: Building A Better World”, Ramanujan College is today perceived as one of the best colleges in the country

ABOUT THE DEPARTMENT OF MATHEMATICS

The Department of Mathematics is one of the long-established departments of Ramanujan College. Earlier, B. A. Programme Mathematics and few courses (Business Statistics and Business Mathematics) of B. Com. (H) were handled by the Department of Mathematics. In the academic session 2013-14, the Department of Mathematics offered honours course in Mathematics under the FYUP scheme of courses which was later re-framed into three-year undergraduate course. Since 2016, the Department is admitting students in B.Sc. (H) Mathematics under the Choice Based Credit System (CBCS). Apart from honours course, the Department also offers Mathematics as a Discipline and Skill Enhancement Course in BA Programme and Generic Elective Course to other honours students.

The Department aims to create a solid foundation for the assimilation of mathematical concepts and structures and build mathematical skills like creative, logical and analytical thinking. Software such as Mathematica is used to increase the understanding of the fundamental mathematical concepts. It has a vibrant Society - "RamanuGen" that promotes student's interests in the subject by organizing activities with their enthusiastic involvement.

The Department has 9 faculty members with their research interests lying in Algebra, Graph Theory, Complex Analysis, Operator Theory and Applied Mathematics. The faculty are research-oriented and have been publishing research articles in peer reviewed National and International journals (specifically Scopus and Web of Science Journals). Faculty members have presented their work on international platform as well. They have been invited as resource persons or chairing the sessions in various academic events all over India. Some of them are also supervising the M.Phil. and Ph.D. students.

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Ramanujan College

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