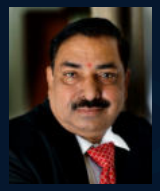
Patron:



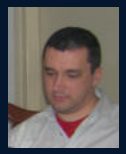
Prof. H. Venkateshwarlu
Hon. Vice Chancellor
Central University of Kerala

The Speakers:

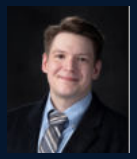
Dr. Thomas Zaslavsky
U.S.A.

Dr. Daniel Slilaty
U.S.A.

Dr. Nathan Reff
U.S.A.



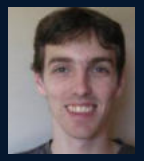
Dr. Zoran Stanic
Serbia



Dr. Lucas Rusnak
U.S.A.

Dr. Shahul Hameed K.
India

Dr. Sudev N.K.
India



Mr. Nicholas Lacasse
U.S.A.

Advisory Committee

- Prof. M. R. Prathapachandra Kurup, Dean, SPS, CUK.
- Prof. A. Radhakrishnan Nair, Registrar, CUK.
- Prof. Thomas Zaslavsky, Professor, Binghamton University, USA.
- Dr. V. Vilfred, Associate Professor, CUK.
- Dr. Shahul Hameed K., KMM Govt. College, Kannur University, India.
- Dr. Sudev N. K., Christ University, Bangalore, India.

Organising Commitee

Dr. Germina K. A.
Conference Chair

- Dr. Shaini P., Assistant Professor, CUK.
- Dr. Ali Akbar K., Assistant Professor, CUK.
- Dr. Gnanavel Soundararajan, Assistant Professor, CUK.
- Dr. Manikandan Rangaswamy, Assistant Professor, CUK.
- Mr. Shijin T. V., Research Scholar, CUK.
- Ms. Soorya P., Research Scholar, CUK.
- Ms. Roshni T. Roy, Research Scholar, CUK.

INTERNATIONAL WEB CONFERENCE ON SIGNED GRAPHS AND ALLIED AREAS

(ICSGAA-2020)

07-09, December 2020

Organised by:

DEPARTMENT OF MATHEMATICS
SCHOOL OF PHYSICAL SCIENCES
CENTRAL UNIVERSITY OF KERALA
Tejaswini Hills, Periye, Kasaragod
Kerala-671316, INDIA

About the University:

The Central University of Kerala, Kasaragod, came into being in 2009 on the noble vision of a 'caring wisdom' and is guided by the lofty ideals of academic and social commitment, moral steadfastness and intellectual and spiritual enlightenment, as reflected in its vision statement. The Central University of Kerala , an institution of post graduate teaching and research in the country is a fast developing University from its inception under the efficient and dynamic administration. The University has grown into an institution offering twenty seven postgraduate and research programmes with a total enrolment of more than one thousand and five hundred students. The University campus is located at Periye, Kasaragod on the 310 acres of land, which is easily accessible from other parts of the country.

About the Department:

The Department of Mathematics in Central University of Kerala was started as one of the first six departments of the University. The Department offers Master of Science and Doctor of Philosophy programs in Mathematics with the major objective of developing a center of excellence especially in Mathematical Sciences and Applications. The Department is a platform to enhance critical and rational thinking in the robustness of mathematical logic, pioneering in academic excellence to reform/transform for the holistic development of the Society. The department's research interests span across the broad areas of Algebra, Analysis, Combinatorics, Control Theory, Differential Equations, Distribution Theory, Fixed Point Theory, Operations Research, Stochastic Process, Special Functions etc.

About the Conference:

ICSGAA-2020 focuses on bringing together stalwarts and experts in this highly applicable area of signed graphs and its allied areas. These areas have been established to be an indispensable mathematical model with wide range of applications in vivid areas ranging from socio-psychological problems to portfolio analysis and to chemical and physical structural analysis to name a few. Signed graphs and its various avatars appear in computing the ground state energy in the non-ferromagnetic Ising model. They have been applied to data classification in correlation clustering and many are still being excessively explored. The seminar will necessarily witness confluence of expertise from different countries adding new insights to this vibrant area of research.

All are cordially invited.

Dr. Germina K. A
Conference Coordinator

Call for papers:

Good quality research articles are invited from the members of faculty, researchers, students and industrialists for presentation in the conference.

- Last date for abstract submission: 31 October 2020
- Acknowledgement of acceptance: 14 November 2020

For registration and other details, visit our website:
http://shorturl.at/hmRY1

Contact:
Dr. Germina. K.A.: +91 9744859390
Mr. Shijin T. V.: +91 8129749326
Email: *icsgaa2020@cukerala.ac.in*

केरल केंद्रीय विश्वविद्यालय
CENTRAL UNIVERSITY OF KERALA

(संसद के अधिनियम, वर्ष 2009 द्वारा स्थापित / Established under the Act of Parliament in 2009)

No.CUK/ACA/WEB/967/2020 443/62217 दिनांक/Dated, 06.11.2020

आदेश / ORDER

1. Administrative approval is hereby accorded to Dr. Germina K A, Associate Professor and Head, Department of Mathematics for organizing "International Web Conference" during 7th to 9th December 2020 at Department of Mathematics, Central University of Kerala.

2. Financial concurrence is given for a total amount of Rs. 35,000/- (Rupees Thirty five thousand only) for the above purpose.

3. This is issued with the approval of the Competent Authority and Financial Concurrence of Finance Wing, Budget Head: Other Academic Expense, Classification code: 351000, Dairy No. CW/05 dated 23.10.2020

Sd/-
REGISTRAR

No.CUK/ACA/WEB/967/2020 ; of dated, 09th November, 2020

Copy to

1. The Dean, School of Physical Sciences
2. Dr. Germina K A, Head, Associate Professor, Department of Mathematics
3. The Assistant Registrar (Finance)
4. Office copy

12/11/20
सहायक कुल-सचिव(शैक्षिक)/ASST. REGISTRAR (ACADEMIC)

तेजस्विनी हिल्स, पेरिया/ डाक, कासरगोड-671316, केरल / TEJASWINI HILLS, PERIYE (P.O.)
KASARAGOD - 671 316, KERALA, दूरभाष/ Phone : 0467-2232403, 2232409,
वेबसाइट/ Website:- cukerala.ac.in, ई-मेल / E mail:- registrar@cukerala.ac.in

A Brief Report on

The International Web Conference on Signed Graphs and Allied Areas, ICSGAA-2020 during 7-9, December 2020 organized by The Department of Mathematics, Central University of Kerala.

Introduction:

This International Web Conference on Signed Graphs and Allied Areas served as a platform for experts, researchers, scientists, Professors, and students; to report, share, and discuss scientific questions, achievements, and challenges on various technical topics related to social network analysis, as well as science and technology. This conference mainly aims at bringing together the experts and researchers to this highly applicable area of signed networks. These areas have been established to be an indispensable mathematical model with wide range of applications in vivid areas ranging from socio-psychological problems to Social Network Analysis.

There was a huge demand for participation in the conference, and we selected nearly 100 participants, whose research work is close to the topic of the conference of which 85 of the participants participated all the sessions. 34 Scholars from around the world registered for paper presentations, of which 28 of them presented their findings in the Conference. We have prepared a Souvenir Cum Book of Abstracts of the conference, which include the extended abstracts of the speakers and the abstracts of the contributory papers, which has been circulated to all the participants on the first day of the conference. This book of abstracts will enable the speakers and participants to keep in contact for future discussions.

DAY-1 (07/12/2020) – MONDAY

INAUGURAL SESSION (09.30 am - 10.15 am)

The inaugural session of the International Web Conference on Signed Graphs and Allied Areas, (ICSGAA-20200), started with University Anthem at 9.30 am. Dr. K A Germina, Head, Department of Mathematics, Central University of Kerala and coordinator of ICSGAA-2020 welcomed the gathering. Prof. H. Venkateshwarlu, Honourable Vice Chancellor, Central University of Kerala released the souvenir and book of abstracts of ICSGAA-2020 and, delivered a very inspirational inaugural talk. Prof. Prathapachandra Kurup, Dean, School of Physical Sciences, CUK and the president of the function delivered the presidential address. Prof. Thomas Zaslavsky, Binghamton University, USA., Dr. M Muralidharan Nambiar, Registrar, Central University of Kerala, and, Dr. V. Vilfred, Associate Professor, Department of Mathematics, CUK, felicitated the gathering. Dr. Shaini P, Assistant Professor, Department of Mathematics, Central University of Kerala, proposed the vote of thanks. The inaugural session ended with National Anthem.

ACADEMIC SESSIONS

The academic sessions were started at 10.30 am. Prof. Thomas Zaslavsky**,** Binghamton University, New York, USA, delivered the plenary talk on Structure for Signed Graphs**.** The session was chaired by Prof. R Balakrishnan, Bharathidasan University, Trichy, India. This session was very notable because of the intensive discussion happened during and after the talk. During the 15 minutes break time the discussions continued. The next session was of contributory paper presentations, which is chaired by Dr. K. A Germina, CUK, Kerala. Four scholars presented their findings in this session. After noon break, the session started at 2pm and Dr. Sudev N K, Christ University, Bangalore, India, gave a one hour talk on, An introduction to set-valued signed graphs. This session was chaired by Dr.

Viji Paul, WMO College, Wayanad, India. Soon after the talk next contributory session started, in which 11 scholars presented their papers, and Dr. K. A Germina, CUK, Kerala, chaired the session.

DAY-2 (08/12/2020) – TUESDAY

Second day started at 9.00 am. Prof. Daniel Slilaty**,** Wright State University, USA, gave a talk on Colorings, flows, and topological embeddings of signed graphs, which was very interesting. A lot of discussions and creative comments were there during the talk. Prof S Arumugam, n-CARDMATH, Kalasalingam University, India, chaired the session. After a break of 15 minutes, Dr. Lucas Rusnak**,** Texas State University, USA, imparted and excellent talk on Oriented Hypergraphs and Generalizing Signed Graphs. Many of the participants enlightened of the talk and had good discussions after the talk. Prof. Mukti Acharya, Christ University, Bangalore, India, chaired the session. At 11.30 again a session of one hour for Contributory papers, in which 4 scholars presented their work. Dr. V. Vilfred, CUK, India chaired the session. After the Noon break, the sessions started at 2.00pm to continue the contributory session. Nine scholars presented their work, and Dr. Sudev N K, Christ University, Bangalore chaired the session. At 4.30 pm Prof. Zoran Stanic**,** University of Belgrade, Serbia gave his invited talk on Signed graphs with a small number of eigenvalues, which was appreciated by all the participants. The discussions after the talk were very intensive. The session was chaired by Prof. Kalarikad Jonah Thomas**,** Professor, Dept. of Physics, CUK.

DAY-3 (09/12/2020) – WEDNESDAY

The session started at 9.00am with the invited talk by Prof. Nathan Reff, College at Brockport, SUNY, USA. He talked on Spectral properties of complex unit gain graphs. The participants rated the talk and discussion excellent. Prof. Joseph Varghese, Christ University, Bangalore, chaired the session. After a small break, at 10.30 am Mr Nicolas

Lacasse, Binghamton University, USA, delivered a talk on Negation Sets: Minimality and Packing. Dr. Sunil Mathew, NIT Calicut, Kozhikode, India, chaired the session. After short discussion, the conference moved to Valedictory session, as Dr. Shahul Hammed K., could not attend the conference due to some personal reasons. Prof. Vincent Mathew, Professor, Dept. of Physics, CUK chaired the valedictory session and felicitated the participants. Dr. Manikandan R., member organizing committee, CUK, India, welcomed the gathering. 12 participants and all the speakers talked during the valedictory to evaluate the conference. All consider the conference **'the best'** conferences for which CUK is happy. Ms. Soorya P, Research Scholar and member of the organizing committee, proposed Vote of thanks for the valedictory function. The valedictory session ended with National Anthm.

Conclusion: Feedbacks were taken at the end of every day. During valedictory session an overall feedback were taken and recorded. All the sessions are recorded, which may be used for future research. The Souvenir cum Book of Abstracts too is prepared and circulated to all the participants, for future reference. 50 hard copy of the Souvenir cum Book of Abstracts are prepared and circulated. E-Certificates were given to all participants, who participated in all the sessions.

Dr. K. A Germina
(Coordinator, **ICSGAA-2020)**

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Dr. K. A Germina
(Coordinator, **ICSGAA-2020)**

CENTRAL UNIVERSITY OF KERALA

SOUVENIR AND BOOK OF ABSTRACTS

International Web Conference On Signed Graphs and Allied Areas ICSGAA-2020

07-09 December 2020

Organised by
Department of Mathematics
School of Physical Sciences
Central University of Kerala, Kasaragod-671316

International Web Conference on

SIGNED GRAPHS & ALLIED AREAS

(ICSGAA-2020)

Souvenir
&
Book of Abstracts

Department of Mathematics
Central University of Kerala.
Kasaragod, Kerala, India

Prepared by:

Albin Mathew, Roshni T Roy, Shahul Hameed K, Shijin T V, Soorya P, and Sudev N K

प्रो. एच. वेंकटेश्वरलु
कुलपति
Prof. H Venkateshwarlu
VICE-CHANCELLOR

CENTRAL UNIVERSITY OF KERALA
Established by the parliament of India under the Central University Act 2009
केरल केन्द्रीय विश्वविद्यालय
Tejaswini Hills, Periye, Kasaragod-671320
TEL :0467-2232400 FAX: 0467-2232402
Web: www.cukerala.ac.in E-Mail: vicechancellor@cukerala.ac.in

From the Vice-Chancellor's Desk

The Central University of Kerala CUK) wants Research and Development to become central to its academic life and become a fundamental feature of its curriculum. CUK is a national institution committed to the principle of academic excellence by successfully performing high-quality academic activities. This can only be achieved through hard work, dedication, perseverance and constant upgradation of knowledge and can be realized only when faculty members and students consider it as their mission to pursue path-breaking and innovative research activities throughout their career.

All departments of CUK strive hard to keep abreast with what is current in their discipline and specialization. In order to do this, regular and sustained national and international academic engagements on contemporary and relevant topics are necessary. These lead not only to the enhancement of knowledge and mastery in the discipline of the participants, but also contribute to the stakeholders and society in general by revisiting traditional and emerging areas from new perspectives through multidisciplinary approaches, which the New Education Policy is all about.

The Department of Mathematics is a leading department of CUK, which from its inception itself has succeeded in developing a culture of hard work, dedication and commitment motivating students and research scholars.

Mathematics is a discipline that allows no room for mistake, nurtures orderliness, equilibrium, harmony, logic etc. and fosters problem solving skills and goal-oriented abstract thinking. Signed Graphs, a notion of balance that can be traced to the 1930s and became a major subject with Frank Haray since 1953, is revisited time and again because of its relevance in practical areas and has generated more ideas in many allied areas such as social psychology and data clustering etc. I am delighted that the Department is organizing the International Conference on Signed Graphs and Allied Areas to find newer areas of study.

I welcome all the delegates especially those from outside the country and the state to our university and wish the conference all success. I also urge all participants to make use of the opportunity to seriously discuss and brainstorm on the various thrust areas of the conference. I hope that this conference would generate innovative ideas that would lead to outcomes like inventions and technologies in social network analysis.

एच. वेंकटेशवार्लू | **H. Venkateshwarlu**

Residence: Muriyam Velil House, Aingoth, Padanakkad, Kasaragod P.O-671328
Tel: 0467 2207654

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केरल केन्द्रीय विश्वविद्यालय
CENTRAL UNIVERSITY OF KERALA
(संसद के अधिनियम, वर्ष 2009 द्वारा स्थापित / *Established under the Act of Parliament in 2009*)

Message from Registrar

I am extremely happy to note that the Department of Mathematics, Central University of Kerala is organising an online internal conference titled "International Web Conference on Signed Graphs and Allied Areas (ICSGAA-2020) during 07-09, December 2020. It is heartening to know that expert and veteran researchers in the area concerned are taking part in the conference as resource persons and contributors.

We all know that the unexpected spread of the Covid-19 pandemic has affected the academic and research activities significantly. Almost all educational institutions in the country are yet to be fully functional since the first quarter of this year. In this context, such web conferences play vital roles in the successful and uninterrupted dissemination of knowledge.

I wish all the delegates, a great educational and informative experience at the conference. I am confident that this conference will indeed generate a lot of interest among the students to explore and pursue the area of research, thereby bringing laurels to your institute and developing our society as a whole.

My best wishes to the organizers of the conference.

1/12/2020.

Dr. M Muralidharan Nambiar
Registrar

01.12.2020
Kasaragod

तेजस्विनी हिल्स, पेरिया डाक, कासरगोड - 671316, केरल / TEJASWINI HILLS, PERIYE P.O., KASARAGOD - 671320, KERALA
दूरभाष /Phone: 0467 2232400, 2232403, 04, 05, 06, 07, 08, 09, 10, टेली फैक्स / Tele Fax: 0467 2232402, 07, 08
वेबसाइट /Website:- cukerala.ac.in, ई-मेल / E-mail:- registrar@cukerala.ac.in

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केरल केन्द्रीय विश्वविद्यालय
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Message from Dean, School of Physical Sciences

It gives me immense pleasure to be a part of the hosting team of International Web Conference on International Web Conference on Signed Graphs and Allied Areas (ICSGAA - 2020) being organized during 07-09, December 2020 by the Department of Mathematics, Central University of Kerala, Kasargod, Kerala. The conference intends to bring together scientists, and researchers from different disciplines to discuss concerns related to various computation techniques in social network analysis, algorithms to compute frustration index and data clustering etc. in a signed network. I take this opportunity to welcome all the delegates of the conference. On behalf of whole ICSGAA – 2020 team, I would like to thank all the authors, and keynote speakers for their support and co-operation. I would like to express my appreciation to the organizing committee for their dedicated efforts to materialize the conference. The success of this conference will encourage us in introducing many more initiatives for innovative trends in the coming years. I wish the ICSGAA – 2020 a grand success.

I hope all the participants will have a fruitful and beneficial experience.

01.12.2020
Kasargod

Prof. Prathapachandra Kurup
Dean, School of Physical Sciences

तेजस्विनी हिल्स, पेरिया डाक, कासरगोड - 671316, केरल / TEJASWINI HILLS, PERIYE P.O., KASARAGOD - 671320, KERALA
दूरभाष /Phone: 0467 - 2309400, 2309495, 2309405, 2232403, टेली फैक्स / Tele Fax: 0467 - 2232402
वेबसाइट /Website:- cukerala.ac.in, ई-मेल / E-mail:- registrar@cukerala.ac.in

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केरल केन्द्रीय विश्वविद्यालय
CENTRAL UNIVERSITY OF KERALA
Established under the Act of Parliament in 2009
Department of Mathematics
School of Physical Sciences
Periye, Kasaragod- 671316, Kerala, INDIA

International Web Conference on Signed Graphs and Allied Areas (ICSGAA - 2020)

Message from Coordinator

I am pleased to extend a warm welcome to the International Web Conference on Signed Graphs and Allied Areas (ICSGAA - 2020) at Department of Mathematics, Central University of Kerala, Kasargod, Kerala, December 07-09, 2020. It is my pleasure to welcome you to this important event.

This International Web Conference on Signed Graphs and Allied Areas is a platform for experts, researchers, scientists, Professors, and students from around the world, providing them with the opportunity to report, share, and discuss scientific questions, achievements, and challenges on various technical topics related to social network analysis, as well as science and technology. ICSGAA-2020 focuses on bringing together stalwarts and experts in this highly applicable area of signed graphs and its allied areas. These areas have been established to be an indispensable mathematical model with wide range of applications in vivid areas ranging from socio-psychological problems to portfolio analysis and to chemical and physical structural analysis, to name a few. Signed graphs and its various avatars appear in computing the ground state energy in the non-ferromagnetic Ising model. They have been applied to data classification in correlation clustering and many are still being excessively explored. This Conference will necessarily witness confluence of expertise from different countries adding new insights to this vibrant area of research.

The Book of Abstracts represents the scholarly work of advanced and innovative thinkers and educators from around the world. It is felt that it is only through the exchange of information that one can hope to keep up with the rapidly changing world around us. Examples of the diverse topics that will be covered in this comprehensive conference include Signed graphs and gain graphs, Skew gain graphs, Signed distance in signed graphs, Negation sets, complex unit gain graphs, and Oriented Hypergraphs etc.

We hope that this conference will be productive and satisfying. I wish you will be able to share experiences and research results, discuss challenges encountered and solutions adopted and have opportunities to establish productive new academic and research collaborations.

Date: 07-12-2020

Dr K.A. Germina
(Coordinator-ICSGAA-2020)

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Welcome from Thomas Zaslavsky

Welcome, all, to SignedGraph World! After decades of exploration, opportunities are yet limitless, questions are unbounded, new problems wait to be discovered or invented.

Here are some of the flourishing domains of today's signed graph theory and its allied areas of signed digraphs, gain graphs, and biased graphs into which you are invited:

Theory

- Frustration, or how much a signed graph fails to be balanced. Theorems and algorithms for special types of graph are sadly lacking.
- Eigenvalue properties of matrices of signed graphs, complex unit gain graphs, and Hermitian matrices of digraphs.
- Strongly regular signed graphs, a signed generalization of strongly regular graphs: eigenvalues and classification—the leader is Zoran Stanić.
- Coloring, a subject where the variety of coloring rules and their chromatic numbers to be explored includes ordinary coloring, list coloring, and circular or fractional coloring.
- Homomorphisms between signed graphs—a leader is Reza Naserasr.
- Which signed graphs embed in which surfaces?—a leader is Shengxiang Lv.
- Signed digraphs of sign-pattern matrices, where the signs but not the values are prescribed: possible ranks, dynamics of corresponding differential systems, et al.
- Algorithms for computing significant invariants or answering structural questions; e.g., fast algorithms for signed planar graphs or other special families of importance.
- Matroids: forbidden minors for matroids of signed, gain, or biased graphs; gain graphs in matroid structure theory—a leader is Jim Geelen.

Applications

- Social networks: algorithms for clustering, balance, and frustration, and the same for signed digraphs.
- Physics: generalized Ising models: ground states, energy landscape, and computational methods for these difficult questions.
- Möbius molecules with twisted rings: eigenvalues, energy, invariants.

Find your direction. Explore and enjoy!

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Contents

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About

About the University

The Central University of Kerala, Kasaragod, came into being in 2009 on the noble vision of a 'caring wisdom' and is guided by the lofty ideals of academic and social commitment, moral steadfastness and intellectual and spiritual enlightenment, as reflected in its vision statement. The Central University of Kerala , an institution of post graduate teaching and research in the country is a fast developing University from its inception under the efficient and dynamic administration. The University has grown into an institution offering twenty seven postgraduate and research programmes with a total enrolment of more than one thousand and five hundred students. The University campus is located at Periye, Kasaragod on the 310 acres of land, which is easily accessible from other parts of the country.

About the Department

The Department of Mathematics in Central University of Kerala was started as one of the first six departments of the University. The Department offers Master of Science and Doctor of Philosophy programs in Mathematics with the major objective of developing a center of excellence especially in Mathematical Sciences and Applications. The Department is a platform to enhance critical and rational thinking in the robustness of mathematical logic, pioneering in academic excellence to reform/transform for the holistic development of the Society. The department's research interests span across the broad areas of Algebra, Analysis, Combinatorics, Control Theory, Differential Equations, Distribution Theory, Fixed Point Theory, Operations Research, Stochastic Process, Special Functions etc.

About the Conference

ICSGAA-2020 focuses on bringing together stalwarts and experts in this highly applicable area of signed graphs and its allied areas. These areas have been established to be an indispensable mathematical model with wide range of applications in vivid areas ranging from socio-psychological problems to portfolio analysis and to chemical and physical structural analysis to name a few. Signed graphs and its various avatars appear in computing the ground state energy in the non-ferromagnetic Ising model. They have been applied to data classification in correlation clustering and many are still being excessively explored. The seminar will necessarily witness confluence of expertise from different countries adding new insights to this vibrant area of research.

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Organising Committee

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Conference Schedule

CT: Contributed Talk, IS: Invited Speaker, KL: Keynote Lecture, IT: Invited Talk.

Monday, 07 of December

9:30–10:15	**INAUGURAL CEREMONY**		
10:30–11:30	KL	**Prof. Thomas Zaslavsky** Binghamton University, New York, USA	Structure for Signed Graphs
11:30–11:45	**Break**		
11:45-12:00	CT	**M. Rajesh Kannan** Indian Institute of Technology, Kharagpur	Adjacency matrices of complex unit gain graphs
12:00-12:15	CT	**Aniruddha Samanta** Indian Institute of Technology Kharagpur	Energy bounds of complex unit gain graphs in terms of the vertex cover number
12:15–12:30	CT	**Jomon K Sebastian** Department of Mathematics, Savio HSS, Kozhikkode	On p-induced signed graphs
12:30–12:45	CT	**Javeria Amreen** CHRIST (Deemed to be University), Bangalore	Modified Inverse Signed Graph of a Group
12:45–14:00	**Break**		
14:00–15:00	IS	**Dr. Sudev N K** Christ University, Bangalore, India	An introduction to set-valued signed graphs
15:00-15:15	CT	**A. Touseef Ahmed** Islamiah College (Autonomous)	Testing Bivariate Exponentiality Against Bivariate Renewal New Better than Used(BRNBU-VS)
15:15–15:30	CT	**Deepika Rajoriya** Dr. Harisingh Gour Vishwavidyalaya, Sagar, M.P	Role of Population Multiplier for Bias Reduction in Edge Estimation of a Planar Graph
15:30–15:45	CT	**Shijin T V** Central University of Kerala, Kasaragod	Signed Distance in Weighted Signed Graphs
15:45–16:00	CT	**R Janani** SSM Institute of Engineering and Technology	Vertex sorting algorithm of Fuzzy graph
16:00-16:15	CT	**Roshni T Roy** Central University of Kerala, Kasaragod	Signed Distance Laplacian Matrices for Weighted Signed Graphs

16:15-16:30	CT	**R. Shankar** Vellore Institute of Technology, Vellore	Local Vertex Antimagic Labeling for Disconnected Graphs
16:30-16:45	CT	**Soorya P** Central University of Kerala, Kasaragod	Vertex $(n, k)^d$ Choosability of Graphs
16:45-17:00	CT	**R. Santrin Sabibha** Holy Cross College, Nagercoil	k-Product cordial labelling of cone graphs

Tuesday, 08 of December

9:00 – 10:00	IS	**Prof. Daniel Slilaty** Wright State University, USA	Colorings, flows, and topological embeddings of signed graphs
10:00–10:30	**Break**		
10:30–11:30	IS	**Dr. Lucas Rusnak** Texas State University, USA.	Oriented Hypergraphs and Generalizing Signed Graphs
11:30–11:45	**Break**		
11:45–12:00	CT	**Josephine Reynes** Texas State University, U.S.A	Kirchhoff-type laws for Signed Graphs
12:00–12:15	CT	**Abhik Singh** Patna University	Some new results on nuclear Spaces and co-nuclear spaces through summability
12:15–12:30	CT	**Udayanatchi K.V.** Kongu Engineering College(Autonomous), Erode	Some results on even vertex square difference labeling
12:30–12:45	CT	**Dr. P. Victor** Karpagam Academy of Higher Education, Coimbatore	Connectivity of S-Valued Graphs
12:45–14:00	**Break**		
14:00–14:15	CT	**Kamala Kannan. V** Vellore Institute of Technology, Chennai, India	Strong rainbow vertex coloring of Harary graphs
14:15–14:30	CT	**S.N.Subhathra** Vellalar College for Women, Erode, India	Star colouring of Kronecker product of paths and cycles with complete bipartite graphs
14:30–14:45	CT	**T Divya** Vellore Institute of Technology, Chennai, India	Local distance antimagic vertex colouring of graphs
14:45–15:00	CT	**Prajnanaswaroopa S** Amrita Vishwa Vidyapeetham, Coimbatore, India	Total Chromatic number for some classes of Cayley graphs
15:00–15:15	CT	**Gnanasekar M** Rathinam College of Arts and Science, Coimbatore	Steiner number in comb product graphs

15:15–15:30	CT	**R. Vignesh** Vellore Institute of Technology, Chennai	Eccentricity-Based Revan and Hyper Revan Indices for Certain Line Graphs
15:30–15:45	CT	**Saratha Nellainayaki S** Vyasa Arts and Science Women's College, Tirunelveli	Herscovici's Conjecture on product of $K_{m,n}$ bipartite graph for $n \geq 3$
15:45–16:00	CT	**Joan Princia** St.Xavier's (Autonomous) College,Tirunelveli	Center Smooth 2- Restrict S_c Domination on Graphs
16:00–16:15	CT	**Germina K. Augusthy** Central University of Kerala, India	On Set Coloring of Signed Graphs
16:15–16:30	**Break**		
16:30–17:30	IS	**Prof. Zoran Stanic** University of Belgrade, Serbia	Signed graphs with a small number of eigenvalues

Wednesday, 09 of December

9:00 – 10:00	IS	**Prof. Nathan Reff** College at Brockport, SUNY, USA	Spectral properties of complex unit gain graphs
10:00–10:30	**Break**		
10:30–11:30	IS	**Mr Nicolas Lacasse** Binghamton University, USA	Negation Sets: Minimality and Packing
11:30–11:45	**Break**		
11:45–12:45	IS	**Dr. Shaul Hameed K** KMM Govt. College, Kannur, India.	The Concept of Signed Distance in Signed Graphs
12:45–13:15	**Valedictory Session**		

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List of Abstracts – Invited Talks

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Plenary Talk

Professor Thomas Zaslavsky

Binghamton University, New York, USA.
zaslav@math.binghamton.edu

Professor Thomas Zaslavsky of Binghamton University, USA is a stalwart and a legend in the field of Discrete Mathematics, Combinatorics and Optimization, especially in Signed Graphs, Gain Graphs, Biased Graphs and allied areas with innumerable research articles, monographs and many other prominent works to his credit listing which will take a lot of space. He has proved his mettle as an efficient teacher, guide and a prolific writer. Constantly following the research across the globe, his collected works in the field of signed graphs and allied areas is a rich resource of information for all the researchers for good reference and guidance.

Topic: Structure for Signed Graphs

Abstract

A signed graph is a graph whose edges are labelled positive or negative. I survey a selection of aspects of signed-graph structure, beginning with Harary's founding "Structure Theorem". Structure means properties like connectivity, classification, and construction. Consider some examples: The fundamental property of a signed graph is balance: every circle is positive; i.e., the edge sign product is +. The first theorem of signed graphs is Harary's classification of balance in terms of a vertex bipartition. A corollary is that balance depends only on the blocks of the graph. Focussing on blocks: In a balanced block (except K_2), every edge is in a positive circle. In an unbalanced block, every edge is in a negative circle; also in a positive circle but with a known exception (and an unfinished proof). Now pairs of edges: In a balanced block, every two edges are in a common positive circle. In an unbalanced block, every two edges are in a common negative circle, with exceptions whose structure is known (but an unfinished proof); and in a common positive circle, with an approximately known exception (and an incomplete proof). Besides graph connection of a signed graph there is matroid connection, more complicated but known in terms of the block structure. Kuratowski's theorem characterizes planar graphs by two forbidden subgraphs. The signed analog of planarity is projective planarity. The eight forbidden subgraphs are known. Signed graphs without disjoint negative circles were classified by Lovász and Slilaty. The edge-disjoint problem is unsolved. The problems for positive circles are unsolved. And more ...

Invited Talk

Dr. Sudev N K

CHRIST (Deemed to be University), Bangalore, India.
sudev.nk@christuniversity.in

Dr. Sudev N K secured the doctoral degree from Kannur University, Kannur, India in the year 2016 under the guidance of Dr. K A Germina. He is currently working as an Associate Professor of Mathematics in Christ University, Bangalore, India. His research interests are in Graph Theory, Number Theory and Combinatorics. Dr. Sudev has published more than a hundred research papers in reputed research journals and organised several international and national level conferences and seminars. He is a member of the Editorial Boards and Referee Panels of many international research journals. Dr. Sudev is also a reviewer of Mathematical Reviews, zbMATH, Computing Reviews and MAA Reviews. Dr. Sudev is also an active member of many professional societies such as Indian Mathematical Society, Ramanujan Mathematical Society, Kerala Mathematical Association, Americam Mathematical Society etc.

Topic: An introduction to set-valued signed graphs

Abstract

A signed graph can be considered as a graph with signs (+ or -) assigned to its edges. A signed graph is said to be balanced if the product of signs of the edges every cycle is positive (i.e., if every cycle of it has even number of negative edges). A signed graph is said to be clusterable if its vertex set can be partitioned in such a way that positive edges lie within the partitions and negative edges across partitions. A set-labelling of a graph G is an injective map $f : V(G) \to \mathcal{P}(X)$ in such a way that the induced function $f^* : E(G) \to \mathcal{P}(X)$ is defined as $f^*(uv) = f(u) * f(v)$, where X is a non-empty set, $\mathcal{P}(X)$ is its power set and $*$ is a binary operation on sets. A sumset labelling of a graph G is a labelling of G, where X is a set of integers and the binary operation $*$ is the usual sumset operation of two sets. An induced signed graph is a signed graph derived from an ordinary undirected graph by assigning signs to its edges in accordance with certain protocols. A set-valued signed graph $S = (G, \sigma)$ is a signed graph with its underlying graph G is a set-valued graph and the signature function is defined by $\sigma(uv) = (-1)^{|f^*(uv)|} = (-1)^{|f(u)*f(v)|}$ for every $uv \in E(G)$. The talk will cover some interesting structural properties of set-valued signed graphs such as balancing, clusterability etc., with a special focus on sumset valued signed graphs.

Invited Talk

Prof. Daniel Slilaty

Wright State University,Dayton, Ohio, USA.
daniel.slilaty@wright.edu

Professor Daniel Slilaty Secured his doctoral degree from the Binghamton University, New York, USA under the guidance of Prof. Thomas Zaslavsky in the year 2000. He has been working as a professor at Wright State University in Dayton, Ohio, USA since 2001. His major research interests are algebraic and topological approaches to graph theory and matroid theory. Prof. Slilaty has published 26 papers, has supervised two master's theses, and has had approximately 180,000 USD in external research funding. He is a proud member of the American Association of University Professors.

Topic: Colorings, flows, and topological embeddings of signed graphs

Abstract

We denote a signed graph by a pair (G, σ) in which G is a graph and $\sigma\colon E(G) \to \{+1, -1\}$ (or $\{+, -\}$, whichever is more convenient). The *chain space* (denote by $C(G)$) is the binary vector space whose elements are the subsets of $E(G)$ and whose addition operation is symmetric difference. The *cycle space* of a graph G is the subspace of $C(G)$ generated by the edge sets of cycles in G. Given (G, σ), we use $\hat{\sigma}$ to denote the induced linear transformation from $Z(G)$ to $\mathbb{Z}_2$ given by σ. Conversely, a linear transformation $f\colon Z(G) \to \mathbb{Z}_2$ yields a sign function $\sigma\colon E(G) \to \{+, -\}$ which is well defined up to switching such that $\hat{\sigma} = f$.
A set of *colors* for a signed graph is just some finite set K which is closed under negation. A *proper K-coloring* of a signed graph (G, σ) is a function $\kappa\colon V(G) \to K$ such that for each edge e with endpoints u and v (with $u = v$ possible) $\kappa(u) \neq \sigma(e)\kappa(v)$. Zaslavsky was the first to explore this idea using integer color sets $\{0, \pm 1, \ldots, \pm k\}$ and $\{\pm 1, \ldots, \pm k\}$. Other color sets which have been explored and are which are useful are finite additive groups. We will survey ideas relating colorings to orientations of signed graphs and nowhere-zero tensions (which we will define in the talk). The results are analogues to known theorems for proper colorings of ordinary graphs, but the proofs are more involved.
A cycle or any closed walk $w = e_1 \cdots e_n$ in (G, σ) is *positive* when $\sigma(w) = \sigma(e_1) \cdots \sigma(e_n) = +$; otherwise, w is called *negative*. Given an closed surface S an *embedding* of (G, σ) in S is an embedding of G in S for which each facial boundary walk is positive. For the projective plane, there is only one type of embdding. For the torus, there is up to homeomorphism only one type of embedding. For the Klein bottle there are up to homeomorphism two types of embedding. This definition of embedding of a signed graph is correct in that it yields the duality between proper colorings of an embedded signed graph and nowhere-zero flows in its dual signed graph. We will explain this duality and explore other attractive analogues of nowhere-zero-flow and proper-coloring theorems for ordinary graphs.

Invited Talk

Dr. Lucas Rusnak

Texas State University, U.S.A
lucas.rusnak@txstate.edu

Dr. Lucas Rusnak received his PhD from Binghamton University in 2010. He is Assistant Professor at Texas State University, a two-time recipient of the Presidential Distinction Award in Teaching, and was featured at the 2019 SXSW Innovation Labs in Austin, Texas. His research is in oriented hypergraphs, combinatorial matrix theory, and generalizations of graph theoretic concepts. He also has interest in signed graph applications to ethical recommenders, cluster models, and multi-agent networks.

Topic: Oriented Hypergraphs and Generalizing Signed Graphs

Abstract

Signed graphs can be studied through their bidirected orientations where each edge-end receives a value of +1 or -1. An edge is positive if the edge-end orientations have different signs, and negative if the edge-end orientations have the same sign. An oriented hypergraph is a multi-directed generalization of bidirected graphs where each incidence of a hyperedge receives an orientation. Signed graphic techniques are then applied locally within the oriented hypergraph; that is, the adjacencies receive signs, not the edges. Any integer matrix can be regarded as the incidence matrix of an oriented hypergraph with the inclusion of parallel incidences.

I will provide a short cursory introduction to the benefits of an incidence theoretic approach and why it is a more "natural" way to approach graph theory. By shifting the analysis to the incidence structure a richer theory is obtained that remedies many graph anomalies by allowing for the entire theory to be presented via Hom's internal to incidence hypergraphs. I will present two new hypergraphic products that immediately resolve a long-standing issue regarding graph homomorphisms. Equipped with this incidence-theoretic approach we will survey some of my favorite results and conjectures for oriented hypergraphs.

We will examine a unifying theorem for hypergraphic adjacency and Laplacian matrices via path embeddings and determine the total-minor characteristic polynomial of each. When these techniques are restricted to signed graphs we are able to provide a new interpretation of the All-Minor's Matrix-Tree Theorem as well as non-conservative signed graphic Kirchhoff-type Laws. These same techniques provide new tools to analyze Hadamard's Maximal Determinant Problem, and I will discuss a new interpretation of the Maximal Determinant Problem as a type of negative cycle packing problem.

Time permitting, I will discuss how the obstacles in the Maximal Determinant Problem are related to hypergraphic balance, frustration, acyclic orientations, and the characterization of the oriented hypergraphicmatroid.

Invited Talk

Dr. Zoran Stanić

University of Belgrade
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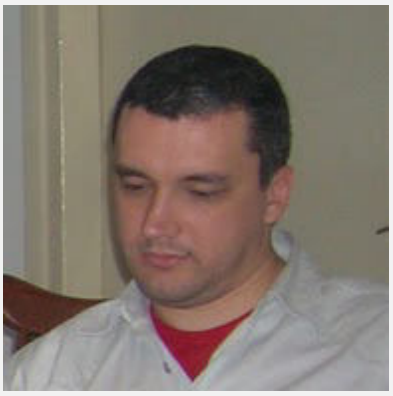

Prof. Zoran Stanić secured the doctoral degree in 2007 from the University of Belgrade. He has been working as an Associate Professor of Mathematics in the University of Belgrade since 2015. He is responsible for the supervision of 4 M.Sc. and 2 Ph.D. students. Dr. Zoran acts as the member of the Editorial Board of the international journal Discrete Mathematics Letters, and currently a guest member of the Editorial board of Discussiones Mathematicae Graph Theory. He is also active in the work with Mathematical Reviews and Zentralblatt Reviews. His current research topics include spectral graph theory, numerical mathematics and combinatorial optimization.

Topic: Signed graphs with a small number of eigenvalues

Abstract

We expose some recent results concerning signed graphs whose adjacency matrix has a comparatively small number of eigenvalues. In particular, we consider those with at most 3 eigenvalues along with a particular focus on regular signed graphs with this spectral property. In this context we also consider strongly regular signed graphs – a recently defined generalization of strongly regular graphs. Some related results that include integral signed graphs and relations between spectra of signed graphs and skew spectra of oriented graphs are also presented.

Invited Talk

Dr. Nathan Reff

College at Brockport, SUNY, USA.
nathan.reff@gmail.com

Dr. Nathan Reff secured his PhD from Binghamton University, USA in 2012 under the supervision of Prof. Thomas Zaslavsky. He is currently working as an Associate Professor Mathematics at the College at Brockport, SUNY, USA. He has published research papers in reputed journals. His area of research interest are spectral and algebraic graph theory, specifically with gain graphs and oriented hypergraphs.

Topic: Spectral properties of complex unit gain graphs

Abstract

A complex unit gain graph is a graph where each orientation of an edge is given a complex unit, which is the inverse of the complex unit assigned to the opposite orientation. We extend some fundamental concepts from spectral graph theory to complex unit gain graphs. We define the adjacency, incidence and Laplacian matrices, and study each of them. We also study eigenvalue bounds for the adjacency and Laplacian matrices. Some of these bounds are related to the underlying structure of the gain graph, and others will be related to more sophisticated parameters, such as the frustration index and number. If time permits, oriented gain graphs will be explored, and further properties between line graphs and matrices will be mentioned.

Invited Talk

Nicholas Lacasse

Binghamton University, New York, USA.
nlacass2@binghamton.edu

Nicolas Lacasse is currently a Research Scholar at Department of Mathematical Sciences, Binghamton University, USA, under the guidance of Professor Dr. Thomas Zaslavsky. He is working in the field of signed graphs, especially on disjoint negation sets – sets whose signs you negate to get balance.

Topic: Negation Sets: Minimality and Packing

Abstract

A signed graph is a graph with a function that assigns a label of positive or negative to each edge. The sign of a circle is the product of the signs of its edges; a graph is balanced if all of its circles are positive. A set of edges whose negation yields a balanced graph is a negation set. A negation set is minimal if it does not properly contain a negation set. It is minimum if there is no negation set consisting of fewer edges. I have studied two aspects of negation sets: under what conditions will we know a negation set to be minimal or minimum, and how do we find families of disjoint negation sets? I give some sufficient conditions for a negation set to be minimal, minimum, or even the unique minimum. Surprisingly, one such result even utilizes the chromatic index of the negation set! For families of bipartite negation sets, I explain why every pair of disjoint negation sets must be bipartite. This leads us to a deceptively challenging question: which signed graphs have bipartite negation sets? In general, this question of existence is an unsolved problem. I have proved that two classes of signed graphs have bipartite negation sets. Having examples of where we can achieve a bipartite negation set, we move on to explore how we can pack those negation sets. I will give an expression for the size of a maximum family of disjoint negation sets containing a given negation set. Unfortunately, the expression is still somewhat mystifying. However, I give an algorithm for quickly evaluating the expression. More than just determining the size of a maximum family, the proofs of these results reveal precisely how to construct such a family of maximum size.

Invited Talk

Dr. Shahul Hameed K

KMM Govt. College, Kannur University, India.
shabrennen@gmail.com

Dr. Shahul Hameed K secured his doctoral degree in Mathematics in 2012 from Kannur University, India under the guidance of Dr. K A Germina. Dr. Shahul is currently working as an Associate Professor of Mathematics at K M M Government Women's College, Kannur affiliated to Kannur University, Kannur, India. His research area is spectral graph theory with specific focus to signed, gain and skew gain graphs. He has published many research articles in reputed journals and he has teaching experience of more than 25 years at various Government colleges in Kerala.

Topic: The Concept of Signed Distance in Signed Graphs

Abstract

A signed graph $\Sigma = (G, \sigma)$ is an underlying graph $G = (V, E)$ with a signature function $\sigma : E \to \{1, -1\}$. In this talk I introduce two types of signed distance for signed graphs and corresponding distance matrices, and characterize balanced signed graphs using these matrices. Also the distance spectrum of some unbalanced signed graphs are explicitly computed in this paper. Finally, I introduce the concept of distance compatibility for signed graphs and prove two theorems, one of which characterizes compatible signed bipartite graphs.

Abstracts - Contributory Papers

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M. Rajesh Kannan
Indian Institute of Technology
Kharagpur.

Topic: Adjacency matrices of complex unit gain graphs

For a given graph G and a group $\mathfrak{G}$, first orient the edges of the graph G. For each oriented edge e_{ij} assign a value (the *gain* of the edge e_{ij}) g from $\mathfrak{G}$ and assign g^{-1} to the orientated edge e_{ji}. If the group is taken to be the multiplicative group of unit complex numbers $\mathbb{T}$, the graph is called the *complex unit gain graph(or $\mathbb{T}$-gain graph)*. *Nathan Reff* defined the notion of adjacency matrices of $\mathbb{T}$-gain graphs, which is a canonical extension of classical adjacency matrices. In this talk, we shall discuss some of the properties of the adjacency matrices of $\mathbb{T}$-gain graphs.

Aniruddha Samanta
Indian Institute of Technology
Kharagpur.

Topic: Energy bounds of complex unit gain graphs in terms of the vertex cover number

A $\mathbb{T}$-gain graph, $\Phi = (G, \varphi)$, is a graph in which the function φ assigns a unit complex number to each orientation of an edge of G, and its inverse is assigned to the opposite orientation. The associated adjacency matrix $A(\Phi)$ is defined canonically. The energy $\mathcal{E}(\Phi)$ of a $\mathbb{T}$-gain graph Φ is the sum of the absolute values of all eigenvalues of $A(\Phi)$. We study the notion of vertex energy of a $\mathbb{T}$-gain graph, and establish bounds for it. For any $\mathbb{T}$-gain graph Φ, we prove that $2\tau(G) - 2c(G) \leq \mathcal{E}(\Phi) \leq 2\tau(G)\sqrt{\Delta(G)}$, where $\tau(G), c(G)$ and $\Delta(G)$ are the vertex cover number, the number of odd cycles and the largest vertex degree of G, respectively. Furthermore, using the properties of vertex energy, we characterize the classes of $\mathbb{T}$-gain graphs for which $\mathcal{E}(\Phi) = 2\tau(G) - 2c(G)$ holds. Also, we characterize the classes of $\mathbb{T}$-gain graphs for which $\mathcal{E}(\Phi) = 2\tau(G)\sqrt{\Delta(G)}$ holds. This characterization solves a general version of an open problem.

Jomon Kottarathil
Department of Mathematics, Savio HSS
Kozhikkode.

Topic: On p-induced signed graphs

The path decomposition of a graph G is the process of decomposing it into edge-disjoint paths. An induced signed graph is a signed graph formed from an ordinary unsigned graph by assigning signs for its edges according some protocol. In this paper, we introduce the notion of a p-induced signed graph as an induced signed graph whose edges receives a sign according to whether its end vertices are the end vertices of a path in a path-decomposition of G. We also discuss some characteristics of this type of signed graphs.

Javeria Amreen
Department of Mathematics, CHRIST (Deemed to be University)
Bangalore.

Topic: Modified Inverse Signed Graph of a Group

Let G be a group with binary operation $*$. The modified inverse graph (in short, i^*-graph) of G, denoted by Γ, is a simple graph with vertex set consisting of elements of G and two vertices $x, y \in \Gamma$ are adjacent if x and y are not inverses of each other. That is, $x \sim y \iff x * y \neq i_G \neq y * x$, where i_G is the identity element of G. In this paper, we extend the study of i^*-graphs to signed graphs by defining i^*- signed graphs. We characterize the graphs for which the i^*-signed graphs and negated i^*-signed graphs are balanced and k-clusterable. We also obtain the frustration index of the i^*-signed graph. Further, we characterize the homogeneous modified inverse signed graphs.

A. Touseef Ahmed
Department of Mathematics
Islamiah College (Autonomous).

Topic: Testing Bivariate Exponentiality Against Bivariate Renewal New Better than Used (BRNBU-VS)

In this paper, a new test for testing bivariate exponentiality against the very strong version of Bivariate Renewal New Better than Used (BRNBU) class of life-time distribution based on U-statistic is proposed. For this proposed test, the asymptotic normality of the test statistic and its consistency are studied. Finally, the theoretical results are applied to analyze real-life data sets.

Deepika Rajoriya
Department of Mathematics,
Dr. Harisingh Gour Vishwavidyalaya, Sagar, M.P.

Topic: Role of Population Multiplier for Bias Reduction in Edge Estimation of a Planar Graph

This paper considers a population of nodes of size η fractionally represented as $\eta = t.\zeta$ where t is treated as population multiplier in common practice in sampling theory the t is treated as 1 but this is t may be $0 < t \leq 1$ or $t > 1$. This paper examines the effect of t over bias and mean squared error in the contribution of D. Shukla and S. Tirpathi. Our main focus in this paper effect on Bias and MSE (Mean Squared Error) when t is greater than one or $t \in (0, 1]$. It has been found that parameter t could be adjusted in such a way to reduce bias and mean squared error of the estimator.

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Topic: Signed Distance in Weighted Signed Graphs

A signed graph is an ordered pair $\Sigma = (G, \sigma)$, where $G = (V, E)$ is the underlying graph of Σ with a signature function $\sigma : E \to \{1, -1\}$. A weighted signed graph is a signed graph Σ with underlying graph G having positive weight function w on the edges. In this article, we define signed distance for weighted signed graphs and discuss some spectrum of the same. Also, we give a characterization for balance in terms of distance in weighted signed graphs.

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Topic: Vertex Sorting Algorithm of Fuzzy Graph

Fuzzy graph plays a major role in many real life problems. Sorting is a process of arranging items/ data systematically, that is arranging items in a sequence, ordered by some criterion. By combining the above two different concepts, an algorithm is proposed for sorting the vertices of fuzzy graph. The traffic network of certain area can be represented using fuzzy graph, where the membership values are calculated using traffic in the roads and possibility of accidents between the roads. In this paper, vertex sorting algorithm of fuzzy graph is proposed and by using this algorithm the order of accidental zone of a certain area in a hierarchy approach can be easily determined.

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Topic: Signed Distance Laplacian Matrices for Weighted Signed Graphs

Let (Σ, w) be a weighted signed graph, where $\Sigma = (G, \sigma)$ is a signed graph and w is a positive weight function defined on the edges of Σ. Corresponding to the two signed distance matrices defined for weighted signed graphs, we define two signed distance laplacian matrices for a weighted signed graph (Σ, w). In this paper, we characterize balance in signed graphs using these matrices and find signed distance laplacian spectra of some classes of unbalanced weighted signed graphs.

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Topic: Local Vertex Antimagic Labeling for Disconnected Graphs

Let $G = (V, E)$ be a graph of order p and size q having no isolated vertices. A bijection $f : E \to \{1, 2, 3, ..., q\}$ is called a *local antimagic labeling* if for all $uv \in E$ we have $w(u) \neq w(v)$, the weight $w(u) = \sum_{e \in E(u)} f(e)$, where $E(u)$ is the set of edges incident to u. A graph G is *local antimagic* if G has a local antimagic labeling. The *local antimagic chromatic number* $\chi_{la}(G)$ is defined to be the minimum number of colors taken over all colorings of G induced by local antimagic labelings of G. In this paper, we determine the local antimagic chromatic number for disconnected graphs.

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Topic: Vertex $(n, k)^d$- Choosability of Graphs

A simple, connected graph $G = (V, E)$ of order n and size m is said to be vertex $(n, k)^d$-choosable, if there exists a collection of subsets of the vertex set, $\{S_k(v) : v \in V\}$ of cardinality k, such that $S_k(u) \cap S_k(v) = \emptyset$ whenever $d(u, v) \leq d$. The d- vertex choice number of a graph G is denoted by $\mathcal{V}_{ch}^d(G)$, is the maximum value of k for which the given graph G is vertex $(n, k)^d$-choosable. This paper initiates a study on vertex $(n, k)^d$-choosability and d-vertex choice number of some classes of graphs. Also, we find some bounds for $\mathcal{V}_{ch}^d(G)$ for certain values of d.

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Topic: k-Product Cordial Labeling of Cone Graphs

Let f be a map from $V(G)$ to $\{0, 1, ..., k-1\}$ where k is an integer, $1 \leq k \leq |V(G)|$. For each edge uv assign the label $f(u)f(v)(mod\ k)$. f is called a k-product cordial labeling if $|v_f(i) - v_f(j)| \leq 1$, and $|e_f(i) - e_f(j)| \leq 1$, $i, j \in \{0, 1, ..., k-1\}$, where $v_f(x)$ and $e_f(x)$ denote the number of vertices and edges respectively labeled with x $(x = 0, 1, ..., k-1)$. In this paper, we prove that the graphs cone $C_n + K_1$ and double cone DC_n admit 5-product cordial labeling and the double cone DC_n does not admit 4-product cordial labeling.

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Topic: Kirchhoff-Type Laws for Signed Graphs

Bidirected incidence orientations can be used to study signed graphs. Each edge can be assigned a value of -1 or $+1$ depending on the orientation of the incidences. If the incidences have the same sign the edge is considered negative, and if the incidences have opposite signs then the edge is considered positive. An oriented hypergraph allows for more than two incidences to appear within edges. This allows for more than two vertices to be adjacent through the same edge. The sign of an adjacency can be determined by the sign of the relevant incidences observed locally within an edge. The hypergraph technique of signing adjacencies, instead of edges, through the incidence structure can be applied to sign graphs. Tutte showed that graphs follow Kirchhoff's laws by using transpedances, which are a comparison between two 2-arborescences. Kirchhoff-type Laws for signed graphs are characterized by generalizing transpedances using the incidence-oriented, bidirected structure and techniques of signed graphs. The classical 2-arborescence interpretation of Tutte is equivalent to single-element Boolean classes of reduced incidence-based cycle covers, call contributors. A generalization of contributor-transpedances can be obtained using entire Boolean classes that are naturally cancellative in a graph. The contributor-transpedances on signed graphs produce non-conservative Kirchhoff-type Laws, where every contributor has a unique source-sink path property. Finally, the maximum values of a contributor-transpedance can be calculated from the signless Laplacian.

Abhik Singh
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Topic: Some New Results on Nuclear spaces and co-Nuclear spaces through Summability

In this paper some results of theory of nuclear spaces and co-nuclear spaces through summability. summability classes, weakly summable classes, absolutely summable classes and total summable classes of vectors are discussed in context of locally convex spaces in order to give some new characterizations of nuclear spaces and co-nuclear spaces. These classes of vectors play very important roles for the development of the theory of nuclear spaces and co-nuclear spaces.

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Topic: Some results on even vertex square difference labelling graphs

A function f is called an even vertex square difference labeling of a graph $G = (V, E)$ with order $p = |V|$ and size $q = |E|$ if it's possible to label the vertices $x \in V(G)$ with distinct labels $f(x)$ from $0, 2, ..., 2q$ in such a way that the induced edge $e = uv$ is labeled with $f^*(e = uv) = |[f(u)]^2 - [f(v)]^2|$. A graph that admits an even vertex square difference labeling of G and G is known as an even vertex square difference graph. In this paper, we investigate the even vertex square difference behavior of some standard graphs.

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Topic: Connectivity of $S-$valued Graphs

The theory of graph connectivity can be applied in grouping problems, transportation problems, network tolerance etc. Critical edges or vertices of a network, on removal makes the hole network to collapse. Hence, it is needed to identify the critical vertices or edges in a network. In crisp graph theory, many authors have studied the problem of connectivity of a graph in detail however, the theory of connectivity of $S-$valued graphs have not been discussed in detail, since the introduction of the theory of semiring valued graphs, briefly called $S-$valued graphs by Chandramouleeswaran et.al. in the year 2015. In this paper we introduced the notion of connectivity of $S-$valued graphs and prove some simple results.

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Topic: Strong Rainbow Vertex Coloring of Harary Graphs

A vertex colored graph G is a rainbow vertex connected if any two vertices are connected by a path whose internal vertices have distinct colors. The rainbow vertex connection of a connected graph G, denoted by rvc (G), is the smallest number of colors that are needed in order to make G rainbow vertex connected. If for every pair u, v of distinct vertices, G contains a rainbow $u^{\smile}v$ geodesic, then G is strong rainbow vertex connected. The minimum number k for which there exists a k – vertex coloring of G that results in a strong rainbow vertex connected graph is called the strong rainbow vertex connection number of G, denoted by $srvc(G)$. In this paper we obtain the strong rainbow vertex connection number of Harary graphs for a particular case and the remaining cases are open.

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Topic: Star Coloring of Kronecker Product of Paths and Cycles with Complete Bipartite Graphs

Let $K_{m,n}, P_r, C_r$ denote a complete bipartite graph, a path on r vertices and a cycle on r vertices respectively. The Kronecker product of two graphs G and H, denoted by $G \times H$, is a graph with vertex set V($G \times H$)= $V(G) \times V(H)$, that is, the set $\{(g, h)|g \in G, h \in H\}$. The edge set of $G \times H$ consists of all pairs $[(g_1, h_1), (g_2, h_2)]$ of vertices with $[g_1, g_2] \in E(G)$ and $[h_1, h_2] \in E(H)$. In this paper, the star coloring of some special classes of graphs such as $P_r \times K_{m,n}$ and $C_r \times K_{m,n}$ have been considered and the star chromatic number χ_s is obtained for such graphs. It is proved that for given positive integers $m, n \geq 2$ and $r \geq 3$,
$(i)\chi_s(P_r \times K_{m,n}) = 2$ min $\{m, n\} + 2,$ for $r > 3$ and
$\chi_s(P_r \times K_{m,n}) =$ max $\{m, n\} + 1,$ for $r = 3$
$(ii)\chi_s(C_r \times K_{m,n}) = 2$ min $\{m, n\} + 2,$ for $r \geq 3$ and $r \not\equiv 6$(mod 4)
$(iii)\chi_s(C_r \times K_{m,n}) =$ min $\{m, n\} + 3,$ for $r \equiv 6$(mod 4).

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Topic: Local Distance Antimagic Vertex Coloring of a Graph

Let $G = (V, E)$ be a graph of order n without isolated vertices. The function $f : V \to \{1, 2, 3, ..., n\}$ be a bijection. The weight $w(v)$ of a vertex v is defined by $w(v) = \sum_{z \in N(v)} f(z)$, where $N(v)$ is the open neighbourhood of v. If $w(u) \neq w(v)$ for any two adjacent vertices u and v, f is said to be a local distance antimagic labeling. A graph G is local distance antimagic if G admits a local distance antimagic labeling. This induces a proper coloring where the vertex v is assigned the color $w(v)$. The minimum number of colors required for proper coloring of G induced by local distance antimagic labeling of G is called the local distance antimagic chromatic number denoted by $\chi_{ld}(G)$. In this paper, we have introduced this new parameter and determined the local distance antimagic chromatic number of some general graphs.

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Topic: Total Chromatic Number for Some Classes of Cayley Graphs

In this paper, we have obtained the total chromatic number for some classes of Cayley graphs, particularly the unitary Cayley graphs on even order and some other circulant graphs. We have also proved the total coloring conjecture for some perfect Cayley graphs

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Topic: Steiner number in Comb Product Graphs

For a connected graph $G = (V, E)$ of order at least 3 and a nonempty subset $W \subseteq V(G)$, the minimum size of a connected subgraph G containing W, if the subgraph a tree with the distance $d(W)$ then the tree is called Steiner *W –tree*. A set $W \subseteq V(G)$ is called Steiner set of G if every vertex of G is contained in a Steiner *W –tree* of G. The Minimum cardinality of its Steiner set called the Steiner number denoted as $s(G)$. We present some classes of graphs for which Steiner number is known. We estimate the Steiner number of some classes of graphs which has comb product such as wheel $P_n \triangleright P_n$, $C_n \triangleright P_n$, $K_n \triangleright P_n$, $C_n \triangleright C_n$, $C_n \triangleright K_n$.

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Topic: Eccentricity-Based Revan and Hyper Revan Indices for Certain Line Graphs

The theory of chemical reaction networks is a branch of mathematics that aims to mimic real world behavior. This has received increasing attention of researchers, primarily due to its biological and empirical chemistry applications. Because of the fascinating problems that emerge from the mathematical structures involved, it has aroused interest of pure mathematicians. Topological indices are real numbers that are presented in terms of graph parameters. In this article, we propose eccentricity-based Revan and Hyper Revan indices for some well-known line graphs of Crown, Gear, Helm, Flower, and Friendship graphs. Finally, we give the numerical and graphical representations of the indices for the mentioned line graphs.

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Topic: Herscovici's Conjecture on product of $K_{m,n}$ bipartite graph for $n \geq 3$

Given a connected graph G, a distribution of n pebbles is the placement of n pebbles on the vertices of G. A pebbling move is removing two pebbles from one vertex and placing one of those pebbles on an adjacent vertex. The pebbling number $f(G)$ of a connected graph is the smallest number such that for any distribution of $f(G)$ pebbles on the vertices of G, it is possible to move a pebble to any vertex of the graph G using a sequence of pebbling moves. The t-pebbling number $f_t(G)$ is the smallest number such that for any distribution of $f_t(G)$ pebbles on the vertices of G, it is possible to move t pebbles to any vertex of the graph using a sequence of pebbling moves. Given a distribution of pebbles on G, let p be the number of pebbles in that distribution and q be the number of vertices with at least one pebble. The $2t$-pebbling property is defined as if it is possible to move $2t$ pebbles to any vertex whenever $p+q > 2f_t(G)$. Chung proposed the first pebbling conjecture in her paper known as Graham's Conjecture. Lourdusamy extended this conjecture as $f_t(G \times H) \leq f(G)f_t(H)$. Herscovici further extended this conjecture as $f_{st}(G \times H) \leq f_s(G)f_t(H)$ for any positive integers s and t. In this paper, we show the Herscovicis's conjecture is true when G is a complete bipartite graph $K_{m,n}$ with m vertices $(m \geq 2)$ on the first partite and n vertices $n \geq 2$ on the second partite and H is a graph having $2t$- pebbling property

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Topic: Center Smooth 2- Restrict S_c Domination on Graphs

Let S be a dominating set of a center smooth graph. The set $RS_c \subset V(G)$ is called a center-smooth $2-RS_c$ set of G if $|N(v) \cap RS_c| \geq 2$ for every vertex $v \in S$. In this paper, we introduce the new concept center-smooth $2-RS_c$ number. The center-smooth $2-RS_c$ number $\gamma_{2cs}(G)$ of G is the number of vertices in a center-smooth $2-RS_c$ set of G. Some results on this new parameter are established and $\gamma_{2cs}(G)$ is computed on some special graphs and also proved that $\gamma_{2cs}(G) = 6$ for Petersen graph G. A result is proved for a triangle free connected graph G with minimum $degree(G) \geq 2$. The following results are proved:
(i) If a connected graph G has exactly one vertex of degree $p-1$, then $\gamma_{2cs}(G) = \gamma_{2cs}(G^-) + \Delta(G)$ and
(ii). Let G be a graph with cut edge $e = uv$ where u and v are only central vertices,$(G) = 1$. If $\gamma_{2cs}(G) = p - |\{u, v\}|$, then $\gamma(G) + \gamma_{2cs}(G) = p$.

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Topic: On Set Coloring of Signed Graphs

A *set-coloring* of a signed graph Σ is an injective function $f : V(\Sigma) \to \mathcal{P}(X)$ such that the induced edge function $f^{\oplus} : E(G) \to \mathcal{P}(X)$, defined by $f^{\oplus}(uv) = (-1)^{|f(u) \oplus f(v)|} f(u) \oplus f(v), \forall uv \in E(\Sigma)$, is also injective. A signed graph Σ together with a set-coloring f is known as a *set-colored signed graph* and is denoted by Σ_f. A set coloring of a signed graph Σ is called a *strong set coloring* if sets on the vertices and edges are distinct and together form the set of all nonempty subsets of X. A set coloring of Σ is called a proper set coloring if all the nonempty subsets of X are obtained on the edges. A signed graph is called strongly set colorable (properly set colorable) if it admits a strong set coloring (proper set coloring). This paper initiates a study on set-coloring of signed graphs.

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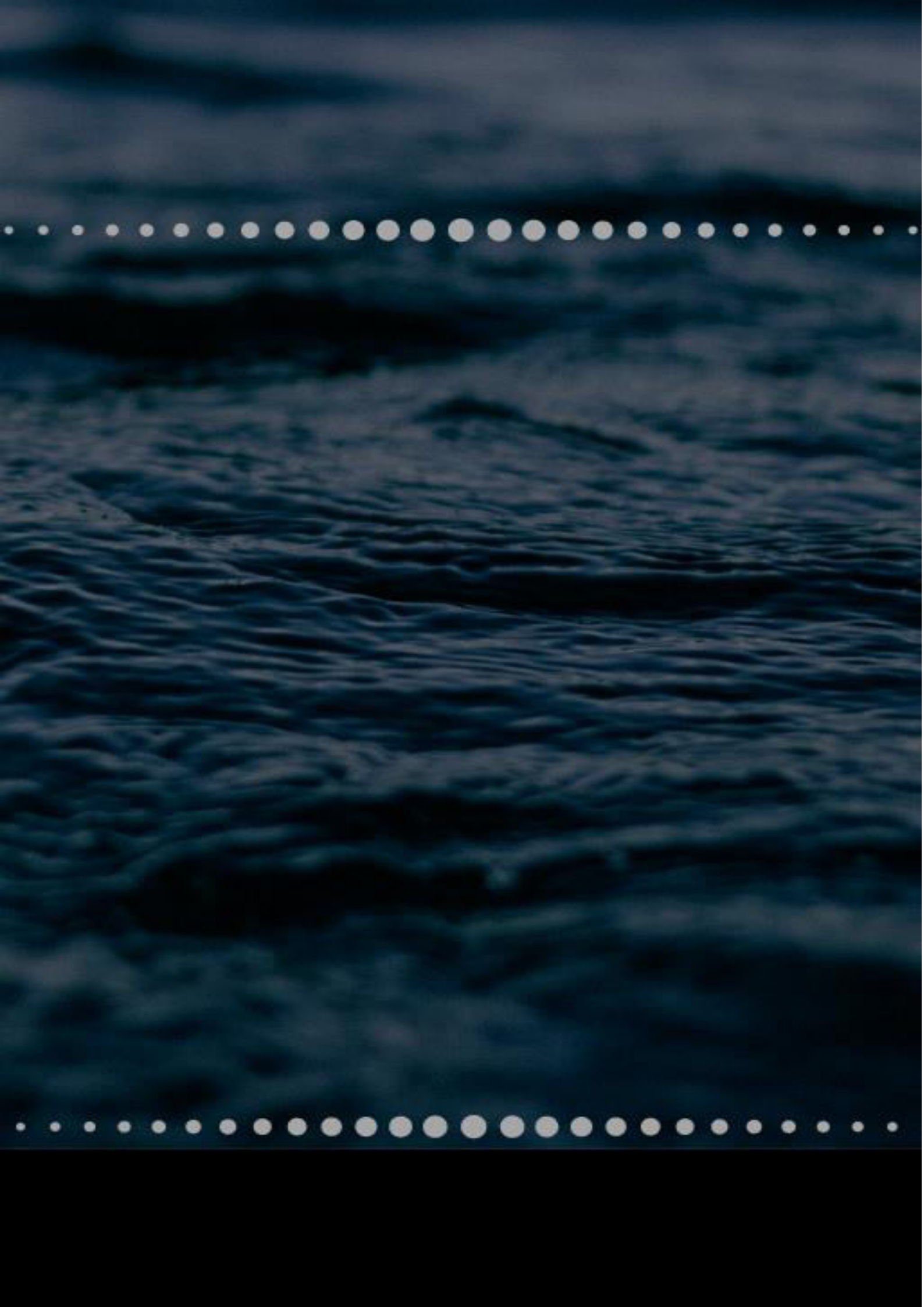
Dr. Vandana P T	Government Arts and Science College, Kondotty. vandanagkrishnan87@gmail.com
Vijay V.	Chennai. vijaybagh22@gmail.com
Vinod Trivedi	Bhavan's Science college(RTD) Ahmedabad. anandamvrt@gmail.com



Timestamp	Email Address	Name of the Participant	Designation	Sessions Attended	Your overall rating for today's sessions	Please provide a feedback for today's sessions
12/7/2020 15:54:10	rvignesh.2018@vitstudent.ac.in	R Vignesh	Research Scholar	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	
12/7/2020 15:54:43	subhathra@vcw.ac.in	S.N.Subhathra	Assistant Biochemistry	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	4	Well organised and very useful
12/7/2020 15:55:14	javeriaamreen@res.christuniversity.in	Javeria Amreen	Research Scholar	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	Sessions were very interesting and informative
12/7/2020 15:55:39	iswarmahato02@gmail.com	Iswar Mahato	Research scholar	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	4	It was a very good session
12/7/2020 15:55:51	albinmathewamp@gmail.com	Albin Mathew	Guest Lecturer, Department of Mathematics, Nirmalagiri College, Kuthuparamba	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	
12/7/2020 15:55:56	bhagya.maths@sode-edu.in	Bhagyalaxmi Navada	Assistant professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	
12/7/2020 15:56:02	sarathanellai@gmail.com	SARATHA NELLAINAYAKI S	Assistant Professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	All the sessions are excellent .. Thankyou

Timestamp	Email Address	Name of the Participant	Designation	Sessions Attended	Your overall rating for today's sessions	Please provide a feedback for today's sessions
12/7/2020 15:56:22	aniruddha.sam@gmail.com	Aniruddha Samanta	Research Scholar	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	Today's session was wonderful and very informative.
12/7/2020 15:56:27	prajaktabharat.joshi@res.christuniversity.in	Prajakta Joshi	Research Scholar	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	4	All the sessiona were good.
12/7/2020 15:56:31	kprekha@gmail.com	REKHA.K.P	ASSISTANT PROFESSOR	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	4	TRAVELLED THROUGH THE SEA OF SIGNED GRAPH...
12/7/2020 15:57:14	divya.t2018@vitstudent.ac.in	T DIVYA	RESEARCH SCHOLAR	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	
12/7/2020 15:57:47	raseja3@gmail.com	Janani Rajasekar	Assistant Professor	Inaugural Session, Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	Overall arrangements and Prof. Thomas Zaslavsky talk was excellant mam.
12/7/2020 15:57:59	murugan.m@cit.edu.in	M.MURUGAN	Assistant Professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	Informative session
12/7/2020 15:58:08	skumarcg@gmail.com	Santhosh Kumar C G	Assistant Professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	Great sessions, very well organized.
12/7/2020 15:58:26	achu.aniyan@res.christuniversity.in	ACHU ANIYAN	Research Scholar	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	

Timestamp	Email Address	Name of the Participant	Designation	Sessions Attended	Your overall rating for today's sessions	Please provide a feedback for today's sessions
12/7/2020 15:59:09	udayamaths.sh@kongu.edu	udayanatchi.K.V	Assistant Professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	Nice,thank you for the Organisors
12/7/2020 16:00:43	jahfartk@gmail.com	JAHFAR TK	Assistant professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	Good
12/7/2020 16:00:49	anubhavkrprasad@gmail.com	Dr. Anubhav Kumar Prasad	Assistant Professor	Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	4	Problem prevailed for logging in the start
12/7/2020 16:01:38	nisha.maths@sode-edu.in	Nisha Reena Nazareth	Assistant Professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	
12/7/2020 16:01:42	renita.maths@sode-edu.in	Renita Sharon Monis	Sr. Assistant Professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	Very nice session
12/7/2020 16:02:31	kaviananyas@gmail.com	S. Kavitha	Research Scholar	Plenary Talk (Prof. Thomas Zaslavsky), Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	4	Good
12/7/2020 16:02:50	sanithazhi@gmail.com	R.Santrin Sabibha	Assistant Professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	
12/7/2020 16:02:51	bindhukthomas@gmail.com	Dr. Bindhu K Thomas	Assistant Professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	4	Very informative

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12/7/2020 16:03:09	touseefmath1@gmail.com	A. TOUSEEF AHMED	Research Scholar	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	Nice
12/7/2020 16:04:06	kavita2428@gmail.com	Kavita Pradeep	Teaching Fellow	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	All the sessions were informative and useful for my further research.
12/7/2020 16:04:19	hitesh.wankhede@students.iiserpune.ac.in	Hitesh Wankhede	BS-MS student	Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K)	3	
12/7/2020 16:05:41	deeparajk@yahoo.co.in	Deepa D	Assistant Professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K)	5	Excellent
12/7/2020 16:06:48	tahir.maths.uok@gmail.com	Tahir Shamsher	Research scholar	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	These were very informative and will be helpful in future research outings...
12/7/2020 16:08:15	sundareswaranr@ssn.edu.in	R. Sundareswaran	Assistant Professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	Nice
12/7/2020 16:13:49	akhilamohankumar@gmail.com	Akhila M S	Research Scholar	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	Excellent

Timestamp	Email Address	Name of the Participant	Designation	Sessions Attended	Your overall rating for today's sessions	Please provide a feedback for today's sessions
12/7/2020 16:14:42	rameshrakeshtwin1993@gmail.com	RAMESH B	Lecturer	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	4	Worthy sessions , Sometimes network isssues came .... Content wise well satisfied.... Tq for the organizers,,,, and especially to GERMINA MAM.... TQ
12/7/2020 16:15:37	deepalakshmis.2019@vitstudent.ac.in	S. DEEPALAKSHMI	RESEARCH SCHOLAR	Inaugural Session, Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	It's more interesting for us.
12/7/2020 16:15:58	maha.rasi120@gmail.com	Dr. S.Maharasi	Assistant Professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Invited Talk - 1 (Dr. Sudev N K)	5	Excellent
12/7/2020 16:16:00	minujose@jecc.ac.in	Minu Jos K	Assistant Professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky)	5	
12/7/2020 16:16:22	ganesamoorthy.k@cit.edu.in	Dr. K. Ganesamoorthy	Assistant Professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	Very good organization
12/7/2020 16:17:03	drvictor.maths@gmail.com	Dr.P.VICTOR	Assistant Professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	All sessions are very informative
12/7/2020 16:20:07	rathinavelshankar@gmail.com	SHANKAR R	RESEARCH SCHOLAR	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	4	It was nice arrangement for the organizing committee
12/7/2020 16:21:51	mondaluttam.1993@gmail.com	Uttam Mondal	Research scholar	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	Thank you all

Timestamp	Email Address	Name of the Participant	Designation	Sessions Attended	Your overall rating for today's sessions	Please provide a feedback for today's sessions
12/7/2020 16:24:14	najmahnazeer@gmail.com	Najmah A R	Assistant Professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	Presence of Thomas Zaslavsky made it excellent
12/7/2020 16:26:33	sntrm4@rediffmail.com	Prajnanaswaroopa S	JRF	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	3	
12/7/2020 16:28:18	hilahmad1119kt@gmail.com	Dr Hilal Ahmad	Lecturer	Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	3	
12/7/2020 16:30:06	maths.sanchari@gmail.com	Sanchari Bera	Research Scholar	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	4	
12/7/2020 16:37:11	real.imagee@gmail.com	NAGARAJ A	Research scholar	Plenary Talk (Prof. Thomas Zaslavsky), Invited Talk - 1 (Dr. Sudev N K)	5	Good
12/7/2020 16:42:51	kavithathilakan96@gmail.com	KAVITHA THILAKAN	Student	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	4	
12/7/2020 16:42:55	sampathkumars@ssn.edu.in	Dr. S. Sampath Kumar	Assistant Professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K)	5	Nice
12/7/2020 16:45:17	jilumjose@gmail.com	Jilu Jose	Assistant Professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K)	4	Good

Timestamp	Email Address	Name of the Participant	Designation	Sessions Attended	Your overall rating for today's sessions	Please provide a feedback for today's sessions
12/7/2020 16:46:26	laavanya.maths@googlemail.com	D Laavanya	Research scholar	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	4	Informative session about signed graph
12/7/2020 16:46:40	jiby.j.k@vidyaacademy.ac.in	Dr.Jiby Jose	Head of the Department	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	4	Good
12/7/2020 16:52:13	gnanasekar.kalam@gmail.com	Mr. M. GNANASEKAR	ASSISTANT PROFESSOR	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	Excellent
12/7/2020 16:55:05	juliakpma071802@cukerala.ac.in	JULIA K ABRAHAM	rESEARCH sCHOLAR	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	Well done
12/7/2020 16:55:24	monikandans@gmail.com	S.Monikandan	Associate Professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Contributory Session – II	5	It was very informative. Unable to attend Prof sudev talk due to laps of network.
12/7/2020 16:56:22	kvtamilselvi@gmail.com	Dr.K.V.TAMIL SELVI	Assistant Professor(Sr. G)	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	
12/7/2020 16:56:55	divyavengad@gmail.com	Divya T	Assistant Professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	4	Good topics...and happy to hear Prof. Thomas Zaslavsky.

Timestamp	Email Address	Name of the Participant	Designation	Sessions Attended	Your overall rating for today's sessions	Please provide a feedback for today's sessions
12/7/2020 16:59:22	islamskrabiul61@gmail.com	Sk Rabiul Islam	Research Scholar	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	Nice program
12/7/2020 17:10:19	jomoncmi@gmail.com	Jomon K Sebastian	HST	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	Very good
12/7/2020 17:21:05	chithra.kp@res.christuniversity.in	CHITHRA K P	Research Scholar	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	Good
12/7/2020 17:22:49	tdivyadevi@gmail.com	DIVYADEVI T	Research Scholar	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	
12/7/2020 18:31:54	mansoorpullaniokl@gmail.com	Mansoor P	Assistant Professor	Inaugural Session, Plenary Talk (Prof. Thomas Zaslavsky), Contributory Session – I, Invited Talk - 1 (Dr. Sudev N K), Contributory Session – II	5	Nice
12/7/2020 19:24:23	mohabbat509@gmail.com	Mr. Mohabbat Ali	PhD Scholar	Contributory Session – II	5	Very nice

Timestamp	Email Address	Name of the Participant	Designation	Sessions Attended	Your overall rating for today's sessions	Please provide a feedback for today's sessions
12/8/2020 16:08:06	roshnitroy@gmail.com	Roshni T Roy	Research Scholar	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	
12/8/2020 16:09:17	shijintv11@gmail.com	SHIJIN TV	Research Scholar	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	V. Good
12/8/2020 16:11:19	albinmathewamp@gmail.com	Albin Mathew	Guest Lecturer	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	All sessions were really nice
12/8/2020 17:04:31	sooryap2017@gmail.com	Soorya P	Research Scholar	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	
12/8/2020 17:32:17	achu.aniyan@res.christuniversity.in	ACHU ANIYAN	Research Scholar	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Invited Talk - IV (Prof. Zoran Stanic)	5	
12/8/2020 17:32:32	touseefmath1@gmail.com	A. TOUSEEF AHMED	Research Scholar	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	Nice
12/8/2020 17:32:46	najmahnazeer@gmail.com	Najmah A R	Assistant Professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Invited Talk - IV (Prof. Zoran Stanic)	5	
12/8/2020 17:33:02	mkaliwal@klsvdit.edu.in	Dr. Meenal M Kaliwal	Assistant Professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III	5	The discussion forum was interesting

Timestamp	Email Address	Name of the Participant	Designation	Sessions Attended	Your overall rating for today's sessions	Please provide a feedback for today's sessions
12/8/2020 17:33:07	rathinavelshankar@gmail.com	SHANKAR R	RESEARCH SCHOLAR	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	4	
12/8/2020 17:33:11	kaviananyas@gmail.com	S. Kavitha	Research scholar	Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Invited Talk - IV (Prof. Zoran Stanic)	4	Good
12/8/2020 17:33:27	javeriaamreen@res.christuniversity.in	Javeria amreen	Research scholar	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	4	Sessions were very interesting.
12/8/2020 17:33:28	murugan.m@cit.edu.in	M.MURUGAN	Assistant Professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	Informative session
12/8/2020 17:33:39	anubhavkrprasad@gmail.com	Dr. Anubhav Kumar Prasad	Assistant Professor	Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	4	
12/8/2020 17:33:59	laavanya.maths@gmail.com	D Laavanya	Research scholar	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	Learned more
12/8/2020 17:34:09	chithra.kp@res.christuniversity.in	CHITHRA K P	Research Scholar	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV	5	
12/8/2020 17:34:11	monikandans@gmail.com	S.Monikandan	Associate Professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	4	The theta problem and spectrum of signed graphs are very interesting

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12/8/2020 17:34:19	aniruddha.sam@gmail.com	ANIRUDDHA SAMANTA	Research scholar	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	Nice sessions
12/8/2020 17:34:25	udayamaths.sh@kongu.edu	Udayanatchi.K.V	Assistant Professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	Thank so much for the organizers
12/8/2020 17:34:32	gnanasekar.kalam@gmail.com	Mr. M. GNANASEKAR	ASSISTANT PROFESSOR	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	
12/8/2020 17:34:45	divya.t2018@vitstudent.ac.in	T DIVYA	RESEARCH SCHOLAR	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	Thanks for organising committee
12/8/2020 17:34:49	iswarmahato02@gmail.com	Iswar Mahato	Research scholar	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	It was a very nice session
12/8/2020 17:34:56	sntrm4@rediffmail.com	Prajnanaswaroopa S	JRF	Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	3	
12/8/2020 17:35:01	real.imagee@gmail.com	NAGARAJ A	Research scholar	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Invited Talk - IV (Prof. Zoran Stanic)	5	Good
12/8/2020 17:35:44	anumath96@gmail.com	Anushree Bhattacharya	Research Scholar	Invited Talk - III (Dr Lucas Rusnak)	4	very good
12/8/2020 17:35:49	bindhukthomas@gmail.com	Dr.Bindhu K Thomas	Assistant Professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	Nil

Timestamp	Email Address	Name of the Participant	Designation	Sessions Attended	Your overall rating for today's sessions	Please provide a feedback for today's sessions
12/8/2020 17:35:54	kprekha@gmail.com	REKHA K.P	ASSISTANT PROFESSOR	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	EXCELLENT , WONDERFULL SESSIONS
12/8/2020 17:35:56	kavithathilakan96@gmail.com	Kavitha Thilakan	Student	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	
12/8/2020 17:36:10	raseja3@gmail.com	R Janani	Assistant Professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Invited Talk - IV (Prof. Zoran Stanic)	5	Invited talk of everyone was too good...
12/8/2020 17:36:25	nisha.maths@sode-edu.in	Nisha Reena Nazareth	Assistant Professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	
12/8/2020 17:36:30	dhanya.maths@sode-edu.in	Dhanyashree Vinay	Assistant professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	
12/8/2020 17:38:07	vijaybagh22@gmail.com	VIJAY. V	PA	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	3	
12/8/2020 17:38:17	maha.rasi120@gmail.com	Dr.S.Maharasi	Assistant Professor	Invited Talk - III (Dr Lucas Rusnak)	5	Excellent
12/8/2020 17:38:26	sundareswaranr@ssn.edu.ij	Dr R. Sundareswaran	Assistant professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	Nice
12/8/2020 17:38:50	mohabbat509@gmail.com	Mr. Mohabbat Ali	PhD Scholar	Invited Talk - II (Prof. Daniel Slilaty)	4	Nill

Timestamp	Email Address	Name of the Participant	Designation	Sessions Attended	Your overall rating for today's sessions	Please provide a feedback for today's sessions
12/8/2020 17:39:06	drvictor.maths@gmail.com	Dr.P.VICTOR	Assistant Professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	4	All sessions are very informative
12/8/2020 17:39:51	ganesamoorthy.k@cit.edu.in	Dr. K. Ganesamoorthy	Assistant Professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	4	Excellent
12/8/2020 17:40:15	kvtamilselvi@gmail.com	Dr.K.V.TAMIL SELVI	Assistant Professor(Sr. G)	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	
12/8/2020 17:41:11	kavita2428@gmail.com	Dr. Kavita Pradeep	Teaching Fellow	Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	All the sessions were informative and useful for my further research.
12/8/2020 17:41:29	sampathkumars@ssn.edu.in	Dr. S. Sampath Kumar	Assistant Professor	Invited Talk - III (Dr Lucas Rusnak), Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	Nice
12/8/2020 17:42:20	mushtaqab1125@gmail.com	Mushtaq Ahmad Bhat	Assistant Professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Invited Talk - IV (Prof. Zoran Stanic)	4	Nice lectures.
12/8/2020 17:43:01	teeku.venki@gmail.com	Thiyagarajan.v	Assistant professor	Invited Talk - II (Prof. Daniel Slilaty)	4	Good
12/8/2020 17:43:33	mondaluttam.1993@gmail.com	Uttam Mondal	Research scholar	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	4	Good session
12/8/2020 17:44:03	sarathanellai@gmail.com	Saratha Nellainayaki S	Assistant Professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	Overall good

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12/8/2020 17:44:14	deepalakshmis.2019@vitstudent.ac.in	S. DEEPALAKSHMI	RESEARCH SCHOLAR	Contributory Session – III, Contributory Session – IV	5	Very useful for us.
12/8/2020 17:45:29	prajaktabharat.joshi@res.christuniversity.in	Prajakta Joshi	Research Scholar	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	All the invited talks were interesting and informative.
12/8/2020 17:45:54	joaprincy@gmail.com	Mrs.Joan Princiya	Assistant professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	Innovative session
12/8/2020 17:46:55	mansoorpullaniokl@gmail.com	Mansoor P	Assistant Professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	Nice
12/8/2020 17:47:12	jomoncmi@gmail.com	Jomon K Sebastian	HST	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	Very good
12/8/2020 17:48:01	jahfartk@gmail.com	Jahfar TK	Assistant professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	Good
12/8/2020 17:48:16	rameshrakeshtwin1993@gmail.com	RAMESH B	Lecturer	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV	4	Good
12/8/2020 17:49:02	subhathra@vcw.ac.in	S.N.Subhathra	Assistant professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	4	Really useful

Timestamp	Email Address	Name of the Participant	Designation	Sessions Attended	Your overall rating for today's sessions	Please provide a feedback for today's sessions
12/8/2020 17:49:40	rvignesh.2018@vitstudent.ac.in	Vignesh R	Research Scholar	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	4	
12/8/2020 17:50:44	juliakpma071802@cukerala.ac.in	JULIA K ABRAHAM	Research Scholar	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	
12/8/2020 17:53:30	rencykuryan@gmail.com	Rency Kurian	Assistant Professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak)	5	Excellent classes
12/8/2020 17:53:30	minujose@jecc.ac.in	Minu Jos K	Assistant Professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Invited Talk - IV (Prof. Zoran Stanic)	4	
12/8/2020 17:53:56	sajinada555@gmail.com	Sajidha P	Research scholar	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	Good
12/8/2020 17:54:51	skumarcg@gmail.com	Santhosh Kumar C G	Assistant Professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	Great sessions
12/8/2020 17:56:30	hilahmad1119kt@gmail.com	Dr Hilal Ahmad	Lecturer	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Invited Talk - IV (Prof. Zoran Stanic)	4	Good
12/8/2020 18:03:39	deeparajk@yahoo.co.in	Deepa D	Asst Professor	Invited Talk - III (Dr Lucas Rusnak)	5	Excellent presentation
12/8/2020 18:06:56	renita.maths@sode-edu.in	Renita Sharon Monis	Sr. Assistant professor	Invited Talk - II (Prof. Daniel Slilaty), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	4	Very informative

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12/8/2020 18:09:20	tahir.maths.uok@gmail.com	Tahir Shamsher	Research scholar	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	
12/8/2020 18:17:47	tdivyadevi@gmail.com	DIVYADEVI T	Research Scholar	Invited Talk - III (Dr Lucas Rusnak)	5	Due to some medical urgency of one of my family members, i couldn't attend the all sessions. Since we are in hospital, i can not know about my presence to the future talks. It would be much helpful if you share the link of recorded videos.
12/8/2020 18:30:58	divyavengad@gmail.com	Divya T	Assistant Professor	Invited Talk - II (Prof. Daniel Slilaty), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	4	
12/8/2020 18:54:37	islamskrabiul61@gmail.com	Sk Rabiul Islam	Research Scholar	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	Nice program and nice organization.
12/8/2020 19:21:49	yshanthi100@gmail.com	Shanthakumari Y	Research Scholar	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	This was really useful for my research work.
12/8/2020 19:23:13	bhagya.maths@sode-edu.in	Bhagyalaxmi Navada	Assistant professor	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	Good
12/8/2020 19:25:22	hitesh.wankhede@students.iiserpune.ac.in	Hitesh Wankhede	BS-MS student	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Invited Talk - IV (Prof. Zoran Stanic)	4	

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12/8/2020 19:41:44	akhilamohankumar@gmail.com	Akhila M S	Research Scholar	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	Excellent
12/8/2020 19:54:37	jiby.j.k@vidyaacademy.ac.in	Dr Jiby Jose	Head of the Department , Department of Applied Sciences	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	4	Good
12/8/2020 20:48:08	maths.sanchari@gmail.com	Sanchari Bera	Research Scholar	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	
12/8/2020 22:51:05	ajayhsinghparmar@gmail.com	DR. AJAY SINGH PARMAR	ASSISTANT PROFESSOR	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Invited Talk - IV (Prof. Zoran Stanic)	4	
12/9/2020 8:29:58	anandamvrt@gmail.com	Vinod Trivedi	Associate Professor (RTD),Ex Head,Dep. Of Mathematics	Invited Talk - II (Prof. Daniel Slilaty), Invited Talk - III (Dr Lucas Rusnak), Contributory Session – III, Contributory Session – IV, Invited Talk - IV (Prof. Zoran Stanic)	5	Simply Excellent

Timestamp	Email Address	Name of the Participant	Designation	Sessions Attended	Your overall rating for today's sessions	Please provide a feedback for today's sessions
12/9/2020 11:19:29	shijintv11@gmail.com	SHIJIN TV	Research Scholar	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	V. Good
12/9/2020 12:09:08	achu.aniyan@res.christuniversity.in	ACHU ANIYAN	Research Scholar	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	
12/9/2020 12:09:40	jar369@txstat.edu	Josephine Reynes	Graduate Student	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	4	
12/9/2020 12:09:53	mohabbat509@gmail.com	Mohabbat Ali	PhD	Invited Talk - V (Prof. Nathan Reff)	4	Nill
12/9/2020 12:09:55	juliakpma071802@cukerala.ac.in	JULIA K ABRAHAM	Research Scholar	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	
12/9/2020 12:10:19	raseja3@gmail.com	Janani R	Assistant Professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Very Excellent and useful session
12/9/2020 12:10:43	rathinavelshankar@gmail.com	R. SHANKAR	Research scholar	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	4	
12/9/2020 12:10:50	prajaktabharat.joshi@res.christuniversity.in	Prajakta Bharat Joshi	Research Scholar	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Both the sessions were wonderful.
12/9/2020 12:11:03	aniruddha.sam@gmail.com	ANIRUDDHA SAMANTA	Research scholar	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Nice Conference.
12/9/2020 12:11:40	murugan.m@cit.edu.in	M.MURUGAN	Assistant Professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Informative session
12/9/2020 12:11:41	mkaliwal@klsvdit.edu.in	Dr. Meenal M Kaliwal	Assistant Professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Excellent sessions.

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12/9/2020 12:11:43	iswarmahato02@gmail.com	Iswar Mahato	Research scholar	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	It was a nice session.
12/9/2020 12:11:48	bindhukthomas@gmail.com	Dr. Bindhu K Thomas	Assistant Professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Very informative and inspiring
12/9/2020 12:11:53	jahfartk@gmail.com	Jahfar Tk	Assistant professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	
12/9/2020 12:11:57	mansoorpullaniokl@gmail.com	Mansoor P	Assistant Professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	
12/9/2020 12:12:13	islamskrabiul61@gmail.com	Sk Rabiul Islam	Research scholar	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Nice program
12/9/2020 12:12:25	rvignesh.2018@vitstudent.ac.in	Vignesh R	Research Scholar	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	
12/9/2020 12:12:27	sundareswaranr@ssn.edu.in	Dr. R. Sundareswaran	Assistant Professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Nice
12/9/2020 12:12:32	divya.t2018@vitstudent.ac.in	T DIVYA	RESEARCH SCHOLAR	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	
12/9/2020 12:12:44	ganesamoorthy.k@cit.edu.in	Dr. K. Ganesamoorthy	Assistant Professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Excellent programme
12/9/2020 12:13:09	sampathkumars@ssn.edu.in	Dr. S. Sampath Kumar	Assistant Professor	Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Nicely organized
12/9/2020 12:13:14	kvtamilselvi@gmail.com	Dr.K.V.TAMIL SELVI	Assistant Professor(Sr. G)	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	
12/9/2020 12:13:31	subhathra@vcw.ac.in	S.N.Subhathra	Assistant professor	Invited Talk - V (Prof. Nathan Reff), Valedictory Session	4	Useful session

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12/9/2020 12:13:46	monikandans@gmail.com	S Monikandan	Associate Professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	All the invited talks are very informative. Now i understand that lot of good works have been done on signed graphs and lot of open problems are there in the topic.
12/9/2020 12:13:59	javeriaamreen@res.christuniversity.in	Javeria Amreen	research scholar	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	very informative and thought provoking sessions
12/9/2020 12:14:08	kavithathilakan96@gmail.com	KAVITHA THILAKAN	Student	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	
12/9/2020 12:14:13	udayamaths.sh@kongu.edu	Udayanatchi.K.V	Assistant Professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	I thank the Organizors
12/9/2020 12:15:29	laavanya.maths@googlemail.com	D Laavanya	Research associate	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	4	Informative session
12/9/2020 12:15:53	dhanya.maths@sode-edu.in	Dhanyashree Vinay	Assistant professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	
12/9/2020 12:16:04	kavita2428@gmail.com	Kavita Pradeep	Teaching fellow	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Invited talks were very useful and informative
12/9/2020 12:17:23	sajinada555@gmail.com	SAJIDHA P	Research Scholar	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Good
12/9/2020 12:17:43	mushtaqab1125@gmail.com	Mushtaq Ahmad Bhat	Assistant Professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse)	4	Nice lectures
12/9/2020 12:18:46	jiby.j.k@vidyaacademy.ac.in	Jiby Jose	Head of the Department,	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	4	Good
12/9/2020 12:20:05	jomoncmi@gmail.com	Jomon K Sebastian	HST	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Wonderful

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12/9/2020 12:20:24	rameshrakeshtwin1993@gmail.com	RAMESH B	Lecturer	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse)	5	Worthy sessions... Tq so much
12/9/2020 12:20:31	hilahmad1119kt@gmail.com	Dr Hilal Ahmad	Lecturer	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse)	3	Good
12/9/2020 12:20:35	real.imagee@gmail.com	NAGARAJ A	Research scholar	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Good
12/9/2020 12:20:46	yshanthi100@gmail.com	Shanthakumari Y	Research Scholar	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	All talks were useful and informative for me to carry our future research work. Thank you for giving me the opportunity to be part a of this wonderful conference.
12/9/2020 12:22:15	sarathanellai@gmail.com	Saratha Nellainayaki S	Assistant Prrofessor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Good
12/9/2020 12:22:35	jilumjose@gmail.com	Jilu Jose	Assistant Professor	Invited Talk - V (Prof. Nathan Reff)	4	Good
12/9/2020 12:24:15	chithra.kp@res.christuniversity.in	CHITHRA K P	Research Scholar	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Really interesting
12/9/2020 12:24:59	hitesh.wankhede@students.iiserpune.ac.in	Hitesh Wankhede	BS-MS student	Invited Talk - V (Prof. Nathan Reff)	5	
12/9/2020 12:25:20	akhilamohankumar@gmail.com	Akhila M S	Research Scholar	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Excellent mam
12/9/2020 12:26:45	skumarcg@gmail.com	Santhosh Kumar C G	Assistant Professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Wonderful presentations
12/9/2020 12:28:17	nisha.maths@sode-edu.in	Nisha Reena Nazareth	Assistant Professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	

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12/9/2020 12:28:32	najmahnazeer@gmail.com	Najmah A R	Assistant Professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Excellent sessions. Please, Provide videos of the sessions
12/9/2020 12:31:23	gnanasekar.kalam@gmail.com	Mr. M. GNANASEKAR	ASSISTANT PROFESSOR	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	
12/9/2020 12:37:09	kprekha@gmail.com	REKHA. K. P	Assistant professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Nice sessions
12/9/2020 12:39:41	minujose@jecc.ac.in	Minu Jos K	Assistant Professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse)	5	
12/9/2020 12:40:25	anandamvrt@gmail.com	Vinod Trivedi	Associate Professor (RTD),Ex. Head,Dept. of Maths	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Excellent...It is beautiful & significant to hold hands of Linear Algebra and signed graphs & walk together fruitfully & enrich both the fields.
12/9/2020 12:40:34	tahir.maths.uok@gmail.com	Tahir Shamsher	Research scholar	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	
12/9/2020 12:45:15	maths.sanchari@gmail.com	Sanchari Bera	Research Scholar	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	
12/9/2020 12:45:43	mondaluttam.1993@gmail.com	Uttam Mondal	Research scholar	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Very good, thank you for arranging this valuable Webinar.
12/9/2020 13:02:40	maha.rasi120@gmail.com	Dr.S.Maharasi	Assistant Professor	Invited Talk - V (Prof. Nathan Reff)	5	Excellent
12/9/2020 13:06:00	renita.maths@sode-edu.in	Renita Sharon Monis	Sr. Assistant Professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	4	
12/9/2020 13:30:19	lmpaleta@usm.edu.ph	Leonard Paleta	Associate Professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Inspiring Talk

Timestamp	Email Address	Name of the Participant	Designation	Sessions Attended	Your overall rating for today's sessions	Please provide a feedback for today's sessions
12/9/2020 13:30:38	divyavengad@gmail.com	Divya T	Assistant Professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	
12/9/2020 13:36:09	bhagya.maths@sode-edu.in	Bhagyalaxmi Navada	Assistant Professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Informative session
12/9/2020 13:41:17	sntrm4@rediffmail.com	Prajnanaswaroopa	JRF	Invited Talk - VI (Mr Nicolas Lacasse)	3	
12/9/2020 13:53:57	drvictor.maths@gmail.com	Dr. P. VICTOR	Assistant Professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	Very informative
12/9/2020 14:00:41	ajayhsinghparmar@gmail.com	DR. AJAY SINGH PARMAR	ASSISTANT PROFESSOR	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	4	
12/9/2020 14:06:21	teeku.venki@gmail.com	Thiyagarajan v	Assistant professor	Invited Talk - V (Prof. Nathan Reff)	4	Good
12/9/2020 14:35:21	deeparajk@yahoo.co.in	Deepa D	Assistant Professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse), Valedictory Session	5	nice webinar
12/9/2020 15:22:19	anubhavkrprasad@gmail.com	Dr. Anubhav Kumar Prasad	Assistant Professor	Invited Talk - V (Prof. Nathan Reff), Invited Talk - VI (Mr Nicolas Lacasse)	4	