



Workshop on  
**ADVANCES IN OPTICAL  
COMMUNICATION**

22-23, July 2023

**BOOK OF ABSTRACTS**



संचार मंत्रालय  
MINISTRY OF  
**COMMUNICATIONS**

# Foreword

The proliferation of wireless networks, increasing adaptation of 5G, data center and cloud access, and impending demands of 6G are driving further increases in demand for capacity in optical networks. Optical fiber networks have improved security, fast restoration, increased data rates, long reach, lower power consumption and large bandwidths. The rise of the Internet of Things (IoT) and artificial intelligence (AI) is further increasing the demand for fast internet connections with increased data rates and reduced latency. These are possible in a cost-effective manner only through optical fiber links. Improved security in critical optical networks is possible with quantum key distribution (QKD). LiFi and free space optical (FSO) communication are emerging technologies which provide seamless connectivity and are particularly beneficial to rural areas in rough terrain.

Considering the urgent need for seeding and nourishing an ecosystem of R&D and translational research in this domain, the Department of Telecommunication (DoT), Government of India, has recently approved the funding for the formation of a consortium comprising academia and industry partners towards this. The global workshop was organized by this consortium under the aegis of DoT to bring in experts from India and abroad for discussions and deliberation on the various critical topics in the domain of Advanced Optical Communication. The workshop was conducted in hybrid mode to enable maximal participation.

The workshop comprised of a Plenary Talk, several Invited Talks, Panel Discussions and Exhibitions from the industry. This book of abstracts consists of the abstracts of all the keynote addresses and the biographies of all speakers and panelists.

Key topics:

- Future Transceiver and fiber technologies
- Radio over fiber for 5G/6G and satellite communications
- Free Space Optics (FSO), Light Fidelity (LiFi)
- Photonics integrated circuits and interconnects,
- Quantum Key Distribution
- Establishment of Advanced optical test bed
- Patents and Standardization

This workshop provided valuable opportunities for networking and collaboration prospects with experts from industries, academia, R&D centers, and the Government over the two days.

Prof. Deepa Venkitesh  
deepa@ee.iitm.ac.in



## WORKSHOP PATRONS



**Shri K Rajaraman**  
Secretary (Telecom),  
Department of Telecommunications



**Prof. V.Kamakoti**  
Director, IITM

## DIGNITARIES



**Shri Devusinh Chauhan**  
Hon'ble Minister of State for Communications



**Smt Gunjan Dave**  
Member(Technology), DoT



**Shri Uma Shankar Pandey**  
Member(S), DoT



**Shri V.L. Kantha Rao**  
Additional Secretary (T)



**Sh. R.R. Mittar**  
Advisor, TEC



**Dr. Rajkumar Upadhyay**  
CEO, C-DoT

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**Prof. Deepa Venkitesh**  
General Chair  
Professor, IITM



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IITM

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**Prof. Abhijit Mitra**  
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TSDSI

**Shri Vijay Madan**  
TSDSI



**Sh. Atul Kumar Gupta**  
CDOT

**Ms. Deepika Ambwani**  
CDOT



**Shri Vinoth S**  
IIT Madras



### ORGANISING COMMITTEE

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Prof. Deepa Venkitesh	Professor, IITM
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Shri Vijay Dixit	TEC
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Prof Abhijit Mitra	IIITD
Shri A K Mittal	TSDSI
Shri Vijay Madan	TSDSI
Sh. Atul Kumar Gupta	CDOT
Ms. Deepika Ambwani	CDOT
Shri Vinoth S	IIT Madras

Program : 22 July 2023

Venue	Time	Program
D7	08:00 - 09:00 hrs	Registration
D7	09:00 - 10:15 hrs	Plenary Session
D7	09:00 - 09:10 hrs	Welcome and Context Setting: Deepa Venkitesh, IIT Madras
D7	09:10 - 09:15 hrs	Introducing the Plenary Speaker Session Chair: Balaji Srinivasan, IIT Madras
D7	09:15 - 10:15 hrs	Plenary Talk by Shu Namiki, AIST Japan
Foyer, D7	10:15 - 10:35 hrs	High Tea
Session I: Transceiver Technology - Current and Future Trends Session Chair: Biman Chattopadhyay, Quanfluence		
D7	10:35 - 11:45 hrs	Speaker 1: Radha Nagarajan, Marvell Technology (Online) Speaker 2: Sudharsanan Srinivasan, IIT Madras Speaker 3: Shalabh Gupta, IIT Bombay
Session II: Panel Discussion - Standardization Challenges and Solutions Session Chair: Ritu Ranjan Mittar, TEC		
D7	11:45 - 12:45 hrs	Panelists 1. Sudipta Bhaumik, STL 2. Jishnu Aravindakshan, Tejas Networks 3. Radhakrishna Ganti, IIT Madras 4. Krishna Kumar, SASMOS 5. Gupteswar Majhi, CDoT
D6	12:45 - 12:50 hrs	Inauguration of Exhibition
D6	12:45 - 14:30 hrs	Lunch, Exhibition
Session III: Advances in Optical Fiber Technology - Beyond Single Mode Fibers Session Chair: David Koilpillai, IITM		
D6	14:30 - 16:00 hrs	Speaker 1: Arvind Mishra, STL Speaker 2: Yongmin Jung, University of Southampton (Online) Speaker 3: Cristian Antonelli, University of L'Aquila (Online)
D6	16:00 - 17:00 hrs	Tea Break, Exhibition
Session IV: Radio Over Fiber for 5G/6G and Satellite Communication Session Chair: Amol Choudhury, IIT Delhi		
D6	17:00 - 18:00 hrs	Speaker 1: Dalma Novak, Octane Wireless (Online) Speaker 2: Meena Dasan, DRDO
D6	18:00 - 19:00 hrs	Exhibition Remains Open
D6	19:00 - 21:00 hrs	Dinner



**Program : 23 July 2023**

Venue	Time	Program
D7	08:00 - 09:00 hrs	Registration
Session V: Optical Networks - Paradigms and Challenges Session Chair: Abhijit Mitra, IIT Delhi		
D7	08:15 - 09:15 hrs	Speaker 1: Biswanath Mukherjee, UC Davis (Online) Speaker 2: Kumar Shivrajan, Tejas Networks
09:30 hrs - 10:15 hrs Special Session: AtmaNirbharta in Telecom Sector		
D7	09:30 - 09:40 hrs	Welcome Address and Introduction to AOC Testbed by Deepa Venkitesh, Project Lead, AOC Testbed, IITM
	09:40 - 09:50 hrs	Address by Gunjan Dave, Member (Technology)
	09:50 - 10:10 hrs	Address by Sh. Devusinh Chauhan, Hon'ble Minister of State for Communications
	10:10 - 10:15 hrs	Vote of Thanks by R.K. Upadhyay, CEO C-DoT
D6	10:15 - 11:30 hrs	Exhibition, High Tea
Session VI: FSO and LiFi - Open problems and implementation challenges Session Chair: Abhishek Dixit, IIT Delhi		
D7	11:30 - 12:30 hrs	Speaker 1: Mahesh Krishnaswamy, Google X (Online) Speaker 2: Hardik Soni, Nav Wireless Technologies
Session VII: Panel Discussion - Patent and Indigenization Challenges & Solutions Session Chair: Avinash Agarwal, TEC		
D7	12:30 - 13:30 hrs	Panelists Balaji Srinivasan, IIT Madras David Koilpillai, IIT Madras Himamshu Khasnis, Signalchip A. Raja, Chennai Patent Office
D6	13:30 - 14:30 hrs	Lunch, Exhibitions
Session VIII: Quantum Key Distribution - Implementation Challenges Session Chair: Anil Prabhakar, IIT Madras		
D7	14:30 - 15:30 hrs	Speaker 1: Anandaraman Sankaran, Toshiba Asia Pacific Speaker 2: Amit Shrivastava, ANURAG, DRDO
Session IX: Photonic Integrated Circuits and Interconnects Session Chair: Bijoy K Das, IIT Madras		
D7	15:30 - 16:30 hrs	Speaker 1: Bill Corcoran, Monash University (Online) Speaker 2: Shankar Selvaraja, IISc Bangalore
D6	16:30 - 17:00 hrs	High Tea
Session X: Panel Discussion: Establishment of AOC Test bed – How it will support the ecosystem Chair: Rajkumar Upadhyay, CDoT Co-Chair: Deepa Venkitesh, IIT Madras		
D7	17:00 - 18:00 hrs	Panelists Badri Gomatham, STL Atul Gupta, CDoT Ravi Mehta, Quanfluence Abhishek Dixit, IIT Delhi Kumar Sivarajan, Tejas Networks Bharat Goel, TATA Communications
D7	18:00 - 18:15 hrs	Valedictory Address by Deepa Venkitesh, IIT Madras



### List of Exhibitors

1. CDOT
2. HTL Ltd (Subsidiary of HFCL)
3. Nav Wireless Technology
4. New Age Instruments & Materials Pvt Ltd
5. IIT Madras (5)
6. IIT Bombay (Aortic Labs)
7. Aheesa Digital Innovations Private Limited
8. Indraprastha Institute of Information Technology Delhi
9. IIT Delhi
10. Quanfluence
11. Velmenni
12. Tejas Networks
13. UTL India





### Speaker Details

Speakers	Mode	Day
Shu Namiki (AIST Japan) (Plenary)	In Person	Day1
Radha Nagarajan (Marvell)	Online	Day1
Sudharsanan Srinivasan (IITM)	In Person	Day1
Shalabh Gupta (IITB)	In Person	Day1
Arvind Mishra (STL, India)	In Person	Day1
Yongmin Jung (U. Southampton)	Online	Day1
Christian Antonelli (Univ. of L'Aquila)	Online	Day1
Dalma Novak (Octane Wireless)	Online	Day1
Meena Dasan (DRDO)	In Person	Day1
Biswanath Mukherjee (UC Davis)	Online	Day 2
Kumar N Sivarajan (Tejas Networks)	In Person	Day 2
Mahesh Krishnaswamy (Taara @ X)	Online	Day 2
Hardik Soni (Nav Wireless )	In Person	Day 2
Anandaraman Sankaran (Toshiba)	In Person	Day 2
Amit Shrivastava (ANURAG, DRDO)	In Person	Day 2
Bill Corcoran (Monash)	Online	Day 2
Shankar Selvaraja (IISc)	In Person	Day 2

**Plenary Speaker**

**Shu Namiki**

Platform Photonics Research Center, AIST, Japan

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**R&D of Optical Networking: Journey to The Next Generation  
Green Digital Infrastructure**

The exponential growth of data traffic has been underpinned by the evolution of optical fiber communication technology. Since its first commercialization in early 80's, the data transmission capacity per optical fiber has been increased from 100 Mbps to 1 Pbps, or at a rate of approximately 2 dB/year --- the same improvement rate as that of Moore's law. So far, optical communication technology has nearly achieved its fundamental limit, or the nonlinear Shannon limit. However, the importance to rely on massive digital data is further growing for the decades to come. The expectations for beyond-5G and 6G mobile networks are not only for increasing performance such as bandwidth and latency but also diversity and dependability of services. Now faced are the challenges as to how to maintain and extend the exponential growth of data by overcoming the fundamental limit and meeting the diverse demands from the future cyber-physical society. In this context, the virtualization of optical networks will receive critical significance, for which more computation power would be needed despite the fact that Moore's law has been slowing down.

Review the history of technological evolution of optical communications then point out present times as a turning point in the sense that the application area of optics is being expanded from data communications to computer interconnects requiring bandwidths several times as large as those of the current transceivers at higher energy efficiencies and bandwidth densities. The technologies that enable such a transition will be not only silicon photonics and co-packaging but also optical switches and a common automated resource management platform. The transition will also require a change of the value chain as it involves the convergence of photonics and electronics industries. Then, in accordance with these observations, the research activities of AIST's Platform Photonics Research Center will be introduced. Finally, it will be concluded that it is a great time for re-inventing optical fiber communications for resolving the challenges rising in the post-Moore's law era with an emphasis on the importance of establishing a global ecosystem seamlessly bridging between R&D and industrial implementation.



### Bio Data:

Dr. Shu Namiki (F'17) received M.S. and Dr. Sci. degrees in applied physics from Waseda University, Tokyo, Japan, in 1988 and 1998, respectively. From 1988 to 2005, he was working for Furukawa Electric Co., Ltd., where he developed award-winning high-power pump lasers, and patented multi-wavelength-pumped fiber Raman amplifiers. From 1994 to 1997, he was a Visiting Scientist at the Massachusetts Institute of Technology, Cambridge, where he studied mode-locked fiber lasers and ultra-short pulses in optical fiber. In 2005, he moved to the National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan, where he has served as Executive Committee Chair of a ten-year national project called "Vertically Integrated Center for Technologies of Optical Routing toward Ideal Energy Savings (VICTORIES)" in collaboration with ten telecom-related companies, and is currently Research Director of Platform Photonics Research Center in AIST. He has authored or coauthored more than 680 conference presentations, papers, book chapters, and patents. His current research interests include software defined dynamic optical path networking and their enabling devices such as nonlinear fiber-optics and silicon photonics.

He was an Associate Editor and Advisory Editor of Optics Express and the Co-Editor-in-Chief of the IEICE Transactions on Communications. He was on the technical committee for OFC, ECOC, CLEO, OECC, OAA, etc. and served as Program Co-Chair of OFC 2015, and General Co-Chair of OFC 2017.

Dr. Namiki is a Fellow of Optica and IEEE, and a member of IEICE and JSAP. He is a recipient of IEICE Achievement Award in 2020.

**Keynote Speaker**

**Radha Nagarajan**

Optical and Cloud Connectivity Group,  
Marvell Technology

**Email ID :** nradha@marvell.com



**Post Moore Data Center Networks**

**Abstract:**

Discussion on the recent advances in optical transceivers for inside and between data center interconnect applications. These include DSP based, PAM4 and 16QAM (coherent) transceivers

**Bio Data:**

Dr. Radha Nagarajan is the Senior Vice President and Chief Technology Officer of Marvell's Optical and Cloud Connectivity Group. In this role, he manages the development of the company's optical platform technology and products. Radha joined Marvell from Inphi, where he served as the Senior Vice President and Chief Technology Officer of Platforms. Prior to joining Inphi, he was a Fellow at Infinera where he was focused on the design, development and commercialization of large scale photonic integrated circuits. Radha has been awarded more than 230 US patents and is a Fellow of the IEEE, OSA and IET (UK). In 2006, he was awarded the IEEE/LEOS Aron Kressel Award in recognition of breakthrough work in the development and manufacturing of large scale photonic integrated circuits.

Radha holds a B.Eng. from the National University of Singapore, M.Eng. from the University of Tokyo, and Ph.D. from the University of California, Santa Barbara, all in Electrical Engineering.



### Keynote Speaker

### Sudharsanan Srinivasan

IIT Madras

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## Integrated photonics for transceivers

### Abstract:

Discussion about high-speed transceivers in data centres from an energy consumption perspective. The need to sustain higher and higher volumes of data processing is a cause for concern for data centre operators, with increased cost of ownership and impact on the environment. Improvements in efficiency for networking are paramount in the next era of our digital world. Integrated photonics can offer both short-term and long-term solutions to data transport within such large computing and storage systems. However, significant R&D is still required to take it to the necessary scale and make it into an enabling technology. identify some of these challenges and discuss the vision to establish a thriving hub for research and development in the field of co-packaged optics.

### Bio Data:

Dr. Sudharsanan Srinivasan received the Bachelor's in engineering physics from the Indian Institute of Technology, Madras, India. He received his Masters and Ph.D. degree from the University of California, Santa Barbara, CA, USA. After a brief stint at Juniper Networks and Hewlett Packard Enterprise, he joined the electrical engineering department of IIT Madras, in January 2022, as an Assistant Professor. His research interests include integrated diode lasers, modulators and photodetectors, heterogeneous material integration, and nanofabrication technology. He has authored and co-authored over 35 journal papers and two book chapters.

**Keynote Speaker**

**Shalabh Gupta**

IIT Bombay

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**Optical Transceivers for Low Power Coherent Data Center Interconnects and AI Hardware**

**Abstract:**

Data center infrastructure has become essential to the digital economy. In addition to the traditional applications in data centers, generative AI and other AI based workloads have massively increased the demand for expansion of data centers and deployment of associated hardware. It is projected that around 8% of the global electricity demand would come from data centers in the near future. Optical interconnects play a vital role in movement of data in and across data centers, and significantly affect their energy efficiencies. They are becoming equally crucial in the AI/ML applications.

Optical transceivers in these interconnects typically use IMDD (Intensity Modulation and direct detection) techniques for energy efficiencies and cost, and coherent techniques for higher capacities and longer reaches. In our group, we have developed fundamentally novel techniques that use polarization multiplexed carrier based self-homodyne (PMC-SH) coherent links that provide twice the capacity and more reach vs IMDD, and promise industry's lowest cost and energy efficiencies. Analog processing techniques also help in achieving the desired goal. An overview of these techniques will be presented.

**Bio Data:**

Dr. Shalabh Gupta received B. Tech degree from the Indian Institute of Technology Kanpur in 2001, and M.S. and PhD degrees from UCLA in 2004 and 2009, respectively, all in Electrical Engineering. For his PhD, he worked on the development of high-resolution high-speed analog-to-digital converters using optical techniques. From 2003-2006, he worked in the industry on the design of analog integrated circuits for high-speed serial links and RFICs for wireless communications. He also spent some time at NEC Labs (Princeton, NJ) to learn and contribute in the area of high-speed coherent optical links. Since 2009, he has been with the Indian Institute of Technology Bombay, where he is currently a professor of Electrical Engineering. His current research interests include electronic and photonic integrated circuits and systems for wired, wireless and optical communications, and more specifically high-speed interconnects. He has recently also founded a commercial startup named "aOrtic Labs" to develop optical transceivers for next generation energy efficient data center interconnects, using techniques developed in his group at IIT Bombay.



### Keynote Speaker

#### Arvind Kumar Mishra

Sterlite Technologies

Email ID : arvind.mishra@stl.tech.



## Evolution of Next Generation multi-core Optical Transmission Networks

### Abstract:

The demand for data consumption has been increasing exponentially due to data-hungry applications such as 4-12K video streaming, 5G services, and unprecedented growth in subscribers' density and internet of things (IoT) devices. The next generation hyper-scale and super high-speed optical network require a much higher transmission rate technology such as 400G and 800G or multi-Tb/s super channel and an ultra-large optical fiber count cable. Earlier Data Center Interconnects (DCIs) operators were not only looking for larger transmission capacity and low power consumption, but also focused on transmission capacity density per unit duct space utilization.

Therefore, for hyper-scale DCIs, multi-core fiber (MCF) can be a more prominent solution due to its ultra-compact form factor easing the space limitation and also supporting multiple data rates transmission than single-core fiber (SCF). However, inter-core cross-talk (IC-XT) is a potential limitation in MCF-based transmission systems. It arises from undesired coupling between the neighbouring cores in MCF and accumulates along the length. Therefore, IC-XT may increase the bit-error ratio (BER) and adversely affect the Quality of Transmission (QoT).

We have developed a single-mode 4-core (4C) MCF with a standard cladding diameter of 125  $\mu\text{m}$  having  $\leq -28\text{dB}$  crosstalk over 10 km and will present our latest multi-tera scale transmission performance results.

### Bio Data:

Dr. Arvind Kumar Mishra is working with Sterlite Technologies Limited as Associate General Manager. He has received M. Sc. and M. Tech. degrees from IIT Delhi and PhD degree from University College Cork (UCC), Ireland. He possesses 20+ years of advance research experience and driving cutting edge research on Multi-Tera-Scale transport systems for NLD/Metro & GPON/NG-PON Access Networks, Fiber Optic Sensor Technologies and Systems for Security & Smart Infrastructure. Prior to 2012, he worked 12 years in Europe (Netherlands, Ireland, Greece & Germany). He has published over 65 articles in peer reviewed International Journals and Conferences. He has served as President, Vice-President and Board of Directors at FTTH Council Asia-Pacific.

**Keynote Speaker**

**Yongmin Jung**

University of Southampton

Email ID : ymj@orc.soton.ac.uk.



**Advancements in hollow core fibre components and direct laser interconnection**

**Abstract:**

Hollow Core Fibers (HCFs) offer exceptional optical properties, but reliable interconnection techniques and effective component integration are vital for realizing their full potential. This presentation will discuss recent developments in micro-optic collimators for HCF components and direct interfaces between HCFs and laser diodes. Specifically, we will address optical interconnection challenges between VCSELs and HCFs, investigating direct butt coupling and simple two-lens imaging methods. These advancements facilitate efficient, reliable, and cost-effective HCF interconnections, making them suitable for diverse applications in telecommunications, data centers, and high-power lasers.

**Bio Data:**

Dr Yongmin Jung is a highly experienced (>20 years) Principal Research Fellow at the Optoelectronics Research Centre (ORC) in the University of Southampton, UK, specializing in optical fibres and optical amplifiers. He leads groundbreaking research on Space Division Multiplexing (SDM) and hollow core fibre technology. Notably, he achieved the world's first multimode erbium-doped fibre amplifier, holds a Guinness World Record in SDM transmission, won the EU Horizon Prize for breaking the optical transmission barrier, and successfully commercialized SDM fibre amplifiers. With a remarkable track record, he has published 3 book chapters, holds 6 patents and authored 380+ scientific papers, with an H-index of 48.





### Keynote Speaker

#### Cristian Antonelli

University of L'Aquila

Email ID : cristian.antonelli@univaq.it.



## Activities of the L'Aquila Testbed

### Abstract:

In this talk, a description about the activities of the L'Aquila Test bed is given - which is a unique test bed supporting multi-institutional experiments for space division multiplexing, in L'Aquila, Italy.

### Bio Data:

Cristian Antonelli (Senior Member, IEEE) is currently an Associate Professor of electromagnetic fields with the Department of Physical and Chemical Sciences, University of L'Aquila, L'Aquila, Italy. He leads the Laboratory of Optics and Photonics, INCIPICT. His research explores propagation effects and novel transmission schemes in fiber-optic communications and quantum communications. He is a Fellow of Optica (previously the optical society of America) and a Topical Editor of Optics Letters.

**Keynote Speaker**

**Dalma Novak**

Octane Wireless

Email ID : [dnovak@octanewireless.com](mailto:dnovak@octanewireless.com).



## Radio over Fiber Technologies for 5G and Beyond

**Abstract:**

The use of fiber-optic links for transporting radio signals in wireless networks is a well-established technology and the convergence of optical and wireless networks continues to evolve. Fiber-optic remoting of radio signals is used in a diversity of wireless networks, including indoor/in-building distributed antenna systems and outdoor cellular networks. Today the capabilities of wireless networks are progressing more rapidly than ever. The proliferation of connected high-capacity smart devices as well as the increase in the number of broadband multi-media services available to the consumer, has led to an escalating demand for wireless access to high-speed data communications. The next generation 5G/6G network promises to deliver unprecedented data rates to the mobile user and the millimeter-wave frequency region is being actively pursued for the provision of these services. This talk will describe some of the challenges and opportunities for radio-over-fiber technologies in emerging 5G+/6G wireless systems.

**Bio Data:**

Dalma Novak is VP of Engineering at Octane Wireless where she develops high-performance RF-over-fiber technologies for commercial and defense wireless applications. She is also an Honorary Professorial Fellow in the Department of Electrical and Electronic Engineering at The University of Melbourne, Australia. Dr. Novak has over 30 years of experience working in the optical and wireless communications fields. She has contributed several book chapters on the design of fiber-wireless communication systems and has more than 300 publications in these areas, including several book chapters and patents. Dr. Novak has extensive technical leadership and project management experience in both the industrial and academic sectors. Prior to co-founding Pharadin 2004, she spent 12 years as a Professor and Chair of Telecommunications in the Department of Electrical and Electronic Engineering at The University of Melbourne, Australia. From June 2001 – December 2003 she was a Technical Section Lead at the venture-backed Dorsál Networks, Inc. and later at Corvis Corporation where she led cross-disciplinary R&D teams developing hardware for long-haul transmission systems. In 2007 Dr. Novak was elected to the grade of IEEE Fellow for her contributions to enabling technologies for the implementation of fiber-radio systems. In 2018 she received the IEEE Photonics Society Engineering



Achievement Award. Dr. Novak is the current Chair of the IEEE TAB Committee on Diversity and Inclusion and was a member of the IEEE Board of Directors as Director of IEEE Division X for 2021– 2022. Dr. Novak received her Bachelor of Electrical Engineering (with First Class Honors) and Doctor of Philosophy from The University of Queensland, in 1987 and 1992, respectively.

**Keynote Speaker**

**Meena Dasan**

LRDE, DRDO

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**Microwave Photonic Technologies for Communication systems - A Radar Perspective**

**Abstract:**

The latest developments in optical techniques have enabled its capabilities to other high bandwidth applications like radar systems including imaging radars, 5G/6G backhauling, etc. Optical systems, with its inherent advantages of low loss, light weight, wide bandwidth, and EMI immune solutions, are revolutionizing high bandwidth systems. The advancements in this field help in microwave signal generation with frequencies up to mm-wave range directly with high precision, distribution of signals over a single fiber, direct detection from RF signals, optical beam forming and related processing. These techniques enhance the system performance with waveform and frequency agility, phase noise stability, high resolution capability with wider instantaneous bandwidth and adaptability to different environments. These features equip the systems with multifunctional capabilities suitable for changing scenarios. The scope of this session will be limited to the functionalities in general from radar perspective that can be adapted for various applications.

**Bio Data:**

Dr D Meena obtained her doctoral degree from Indian Institute of Science (IISc), Bangalore. She also holds an MBA degree from Bharathidasan University. Started her career with L&T Pvt. Ltd and then served in the teaching profession for 4 years before joining DRDO in 1996. Currently working as a senior scientist at Electronics and Radar Development Establishment (LRDE), Bangalore, DRDO and is leading Photonics related development activities. Prior to LRDE, she has worked at various DRDO labs, viz., NPOL Cochin, CASSA Bangalore. She is the recipient of various awards at lab and national levels which includes National Technology award for the development of new patented technology Digital Beam forming Technology for Radars. Agni award for excellence in Self reliance. Technology group award and so on for her various contributions. She has multiple filed and granted patents and copy rights to her credit and has published more than 80 papers both at national & international levels. She has co-authored a book in the area of Field Programmable Gate arrays and a book chapter on Optically Multiplexed Systems: Wavelength Division Multiplexing. She is a Senior and Honour society HKN member of IEEE and reviewer for some of the leading journals like Elsevier, SPIE and PIER journals. Her research interests include Phased array radar systems and Microwave photonics.



### Keynote Speaker

#### Biswanath Mukherjee

Distinguished Professor,  
University of California, Davis  
Email ID : bmukherjee@ucdavis.edu.



## Why is My App Not Working? Is Application Layer or Network Layer or Optical Layer to Blame?

### Abstract:

Internet users demand ubiquitous access to applications anytime anywhere but they do not always get optimal service. To improve user experience, we need integrated end-to-end network management and analytics across application, network, and optical/physical layers.

### Bio Data:

Biswanath Mukherjee is Distinguished Professor Emeritus at University of California, Davis, where he has been on the computer science faculty since 1987. He is also Founder and President of Ennetix, a startup specializing in AI-powered IT/OT performance and security analytics. Mukherjee received the B.Tech. degree from IIT Kharagpur (1980), and PhD from University of Washington, Seattle (1987). He was General Co-Chair of OFC'2011 Conference, TPC Co-Chair of OFC'2009, and TPC Chair of INFOCOM'1996. He has supervised 81 PhDs to completion. He is Co-winner of 17 Best Paper Awards, including the 2018 Charles Kao Award for Journal on Optical Communications and Networks. He is author of Optical WDM Networks (Springer, 2006). He is Winner of IEEE Communications Society's inaugural (2015) ONTC Outstanding Technical Achievement Award "for pioneering work on shaping the optical networking area." He is an IEEE Fellow.

**Keynote Speaker**

**Kumar N Sivaranjan**

Tejas Networks

Email ID : kumar@tejasnetworks.com.



## Technology Challenges in Optical Communications

**Abstract:**

Review the progress in optical communications and outline the technology challenges that we need to overcome to take the next big leap. We will also briefly discuss the opportunities for Indian companies in this space.

**Bio Data:**

Kumar is the founder and CTO of Tejas networks. He has nearly 3 decades of experience in the field of telecommunications. He is a fellow of the Indian National Academy of Engineering. In 2000, he received the Swarnajayanti fellowship from the DST, GOI, which is awarded to outstanding young scientists to pursue basic research in frontier areas of science and technology. Kumar has co-authored the bestselling book titled "Optical Networks: A practical perspective" which is currently in its third edition. He is also a recipient of the prestigious IEEE W.R.G Baker prize award in 1997, which is presented for the outstanding paper reporting original work in the transactions journals and magazines of the societies. In the year 2021 he was elevated to IEEE fellow status for extraordinary and continued contributions to the field of optical networking. He is the recipient of the best CTO award from ET telecom in 2022. Kumar was the first chairperson of the governing council of telecommunication standards development Society India which is an organisational partner of 3GPP, the global standards but it is possible for formulating 5G standards. Prior to joining Tejas he was an associate professor at the IISc Blore and also staff member at IBM Thomas Di Watson research Centre New York. Kumar was a BTech in electrical engineering from the Indian Institute of Technology Madras and an MS & PhD from the California Institute of Technology USA. At Caltech he was selected for the IEEE Charles LeGeyt scholarship, an annual award given to only one first year graduate student of Electrical engineering studying in the USA. Kumar received the distinguished Alumnus award from IIT Madras in 2013.



### Keynote Speaker

#### Mahesh Krishnaswamy

Taara at X, the moonshot factory

Email ID : mkr@x.team.



## Delivering abundant and affordable internet through wireless optical communication

### Abstract:

Discussion on Wireless Optical Communication (WOC) and its role in providing ubiquitous broadband internet for next-generation connectivity networks. We will share the latest commercial developments with Taara's current WOC system, highlighting select use cases from real world deployments by ISPs and telcos in and outside India. We will conclude with our innovations on the optical phased array that will help extend the benefits of WOC to more people, and elaborate on the opportunities we are looking for within the industry.

### Bio Data:

Mahesh Krishnaswamy leads Taara at X, Alphabet's moonshot factory. Taara is X's moonshot to bring affordable high-speed, high-capacity bandwidth to underserved communities around the world by using a new approach to wireless optical communication technology, or beams of light. Before founding Taara, Mahesh headed the manufacturing and supply chain for Project Loon, which used floating balloons in the stratosphere to augment cellular connectivity. Previously, Mahesh worked at Apple managing a portfolio of strategic products from concept to launch, and a decade at Motorola as a product manager, where he brought WiMAX and LTE portfolio products to market. Mahesh holds a Bachelor of Science, a Master of Science in Electrical Engineering and an MBA from Northwestern Kellogg Graduate School of Management.

**Keynote Speaker**

**Hardik Soni**

Nav Wireless Technologies

Email ID : hardik.soni@navtechno.in.



**Introduction of Free-space optics (FSO) technology & Implementation  
Challenges for terrestrial applications in real use case scenarios**

**Abstract:**

1Gbps data transmission is proven up to 10km using FSO technology so far under various atmospheric noises. The integration of radio signals to FSO leads to the reduction of deployment cost for the wireless operators and addresses the “last mile” bottleneck in access networks. Future work should alleviate the effects of atmospheric turbulence to achieve higher data rates to realize FSO as a promising technology for future wireless networks.

**Bio Data:**

Mr. Hardik Soni, CTO & Co-Founder of Nav Wireless Technologies Pvt Ltd, NavTech is global leading technology and solutions provider of Wireless & Information communications systems with its own R&D facilities, manufacturing base in Gujarat, India. The company offers a comprehensive suite of products and services in the domain of Optical Wireless Technologies & transmission system to its global customers. NavTech is one of the pioneer companies in the world who provides Optical Wireless Technologies – LiFi | FSO made in India products.





### Keynote Speaker

## Anandaraman Sankaran

Toshiba Asia Pacific

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## Toshiba's Solution for Quantum Secured Networks

### Abstract:

Toshiba envisions huge potential of the future quantum economy to be created by quantum technologies in the next decades as the current massive digital economy has been brought by digital internet technologies in the last several decades. QKD (Quantum Key Distribution) is one of the first quantum technologies to apply in commercial use and drive the quantum economy going forward. This presentation addresses how QKD has been/is being applied around the world and also how it helps governments and enterprises prepare for quantum secure communication in the quantum computing era coming soon.

### Bio Data:

Mr. Anandaraman Sankaran is a visionary Technology Evangelist with over a decade of expertise in cyber security across the APAC region. His focus spans Telecommunications Infrastructure, Digital Identities, Mobile Payments, and IoT applications. Currently a Senior Manager at Toshiba. Anandaraman promotes Quantum Key distribution (QKD) technology in the APAC region. An active member of the Telecommunications Standards Advisory Committee (TSAC Focus Group 7 Quantum Communication Networks) in Singapore. He contributes to the advancement of industry standards. Prior to this, he served as the Customer Applications Support Manager at NXP Semiconductors, where he excelled in evangelizing NFC (Near Field Communication) technologies. With a master's degree in Embedded Systems from Nanyang Technological University, Singapore, and a CISSP certification, he brings a wealth of expertise in cyber security and emerging technologies to the field.

**Keynote Speaker**

**Amit Shrivastava**

DRDO

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**Quantum Key Distribution: Implementation Challenges and the Way Ahead**

**Abstract:**

Quantum technologies leverage on quantum physics properties such as superposition, entanglement, to provide disruptive solutions for processing information, exchanging data and interacting with the world. Quantum computing, Quantum communication and Quantum Sensing are the three verticals with the potential of impacting the defense, national security and other sectors. Out of these three, Quantum Communication, especially the quantum key distribution (QKD) is the most mature and most ubiquitous application of quantum technology. The QKD holds great potential in providing information theoretic security against unbounded adversary, which is infeasible classically, offering a quantum-safe solution to the increasing threats posed by quantum computers. However, the practical implementation of QKD faces several challenges such as low key rate, limited range, practical security, accessibility, higher cost etc. that hinder its widespread adoption. In this talk we will discuss the implementation of Distributed Phase Reference based on phase and time-bin encoding QKD Protocols on optical fibre media up to 100 km and the results obtained and lessons learned during field trials will be presented. The lab level implementation of Entangled photon pair source (EPS), free space QKD and Quantum Random Number Generator (QRNG) using BBO crystal will also be presented. The talk will also include ongoing and future planned activities specially device independent QKD, Satellite QKD and quantum repeater, in the area of quantum communication in DRDO which might provide the solutions to the limitations mentioned above for the widespread adoption of quantum communication technology.

**Bio Data:**

Mr. Amit Shrivastava is working as a scientist-'F' at RCI-DRDO Hyderabad laboratory. He received his Master degree in Computer Science & Engg. from IIT-Delhi in 2006 and bachelor degree in Computer Science & Engg. from BIET Jhansi in 1998. He has been working in the area of Quantum Cryptography for the past 5 years and successfully completed a project on Quantum Communication. He also has expertise in the field of scientific data computing, visualization, graphics, computer vision & GPU technologies. He has received Technologies group award in 2006, National Science day award in 2017 & in 2002 from DRDO and Innovation award from NVIDIA in 2016.



### Keynote Speaker

#### Bill Corcoran

Monash University

Email ID :Bill.Corcoran@monash.edu.



## Micro Size, Macro Performance: Distilling Optical Frequency Combs

### Abstract:

There's a performance gap between bench top frequency combs and micro combs when using these as light sources for optical communications. One issue is noise - efficient micro combs have micro-power, and communication systems need significant optical power to run. We've worked on distilling noisy micro combs through periodic filtering, using the same high-Q micro-rings predominantly used to produce micro combs to knock out broadband noise around the narrow band ccomb carriers. We show that this can improve noise performance in experiments by over 10 dB, link this with numerical simulations, and provide closed-form solutions to connect optical communications performance benchmarks with comb-line optical signal-to-noise ratios with distillation.

### Bio Data:

Dr. Bill Corcoran is an Australian Research Council Future Fellow & Senior Research Fellow within the Department of Electrical and Computer Systems Engineering at Monash University (Melbourne, Australia). His research focuses on the application of photonics in optical communication systems. Bill completed his undergraduate in Physics and Electrical Engineering at RMIT University (Melbourne, Australia) in 2006, before studying for a PhD in Physics, where he focused on the application of "Slow Light" to the enhancement of optical nonlinear effects, graduating in 2011. He then worked on ultra-low noise optical phase sensitive amplifiers at Chalmers University (Gothenburg, Sweden) from 2011-2013. He joined Monash University as a postdoc in 2013, focusing on optical super channels, becoming an ongoing member of staff in 2015. In 2020, he made global news with a record super channel data rate from a tiny optical frequency comb (Micro comb). He is currently a Chief Investigator and Node Leader for the new ARC Centre of Excellence in Optical Micro combs for Breakthrough Science (COMBS).

**Keynote Speaker**

**Shankar K Selvaraja**

IISc Bangalore

Email ID :shankarks@iisc.ac.in.



**Silicon++ technology for next generation communication and computing :  
an indigenous effort**

**Abstract:**

Rationalise the need for beyond traditional CMOS silicon technology. I will present developments at the photonics research laboratory at the centre for nano science and engineering, IISc Bangalore towards realising a fully indigenous photonic IC technology for next-gen communication and computing applications. The talk will cover demonstration of functional block demonstration, state-of-the-art device and process technology for advanced communication.

**Bio Data:**

Prof. Shankar Kumar Selvaraja is Prof. Ramakrishna Rao chair professor at the Centre for Nano Science and Engineering in the Indian Institute of Science Bangalore. He is also the Chair of the National Nanofabrication Centre (NNfC) at IISc. Before joining IISc in 2014, he was with IMEC Belgium. He received his PhD for his work on wafer-scale fabrication technology for Silicon photonic integrated circuits from Ghent university-imec Belgium. He is an alma mater of Bharathiar University, College of Engineering Guindy, University of Twente the Netherlands and Ghent University-imec. He has spent over 15 years in Silicon and integrated photonic developing state-of-the-art CMOS process and device technology for high-speed optical interconnect and sensing application. He has published over 260 research articles in international journals and conferences and six international patents. He is a recipient of the DST-SERB Early Career Researcher Award and Visvesvaraya young faculty research fellowship award from the MeITy.. His current area of research includes silicon photonic IC enabled high-speed optical connectivity technology, integrated photonic based on-chip sensors, neuromorphic photonics and quantum photonic integrated circuit.



### Panelist

#### Ritu Ranjan Mittar

TEC

Email ID :srddg.tec@gov.in.



### Biography:

Shri Ritu Ranjan Mittar is an Indian Telecommunication Services Officer of 1985 Batch. With over 35 years of experience in the telecommunications industry, Sh. Mittar has worked on various projects related to the development and deployment of telecommunications networks, standards, and policies in the Department of Telecommunications, Government of India. He has also been involved in the development of various technical standards and specifications for the telecommunications industry, including Quantum, 5G, IoT, and M2M technologies. He is actively participating in the meetings of standards development organizations, viz., ITU, ETSI, APT, WRC, etc. and also interacts with other international fora, viz., 3GPP, ETSI, IETF, One M2M, etc. He also holds the important leadership position from India as Chairman of International Telecommunication Union (ITU-T) Study Group 11, which deals with the international standardization of “*Signalling requirements, protocols, test specifications and combating counterfeit telecommunication/ICT devices*”. Currently, he as Advisor is also heading the Telecommunication Engineering Centre, the technical and standardization arm of Department of Telecommunications, Government of India.

**Panelist**

**Sudipta Bhaumik**

STL, India

**Email ID :** [sudipta.bhaumik@stl.tech](mailto:sudipta.bhaumik@stl.tech).



**Biography:**

A post-graduate Ceramic Engineer from IIT-BHU with over 25 Years of intensive experience in Quality Management, Manufacturing, Application Engineering, Standard Engineering, Pre-sales, Business Development, System and Process Improvement in Optical Fiber & Cable manufacturing industry and passive connectivity solutions. Engaged in research on subjects of quality, reliability and application related issues of optical fibre and cable and published over 40 papers. A master trainer and one of the founder members of STL Academy . Currently leading technology and pre-sales of Optical Networking solutions, located at Mumbai, India. He is a Vice Chairman of ITU-T Study Group 15, project leader of IEC SC 86A and BIS Sectional Committee on Fiber Optics and Liaison Officer between ITU-T SG15 and IEC TC86. Sudipta is the first Indian to receive the prestigious IEC 1906 award from IEC TC86. He is a two-time recipient of the Urbain J.H.Malo medal (by Wire Association International, Boston, USA) award for best technical paper.



**Panelist:**

**Jishnu Aravindakshan**

Tejas Networks, India

**Email ID :** jishnu@tejasnetworks.com.



**Biography:**

**Jishnu Aravindakshan** is Principal Architect Technology in CTO's office, Tejas Networks India Limited and has 19 years' experience in the field of Telecom. He obtained his BTech in electronics and communication from NIT, Calicut in 2001 and Masters from IISc, Bangalore in 2004. Subsequently he joined Tejas Networks and is responsible for deciding the long-term roadmap of the company. He has represented Tejas at ITU-T SG15 and has contributed towards the development of ITU-T G.8032 and MPLS-TP standards. His present interests include 5G-Adv and 6G. He is actively involved in 5G standardization through TSDSI (Telecom Standards Development Society, India) at ITU-R WP5D, and as Individual Member at 3GPP RAN1/SA2. He was closely involved in the design of 3G/4G backhaul architecture with major Indian and International operators. He successfully represented India and TSDSI during the IMT2020 standardization activity for inclusion of LMLC (Low Mobility Large Cell) as a 5G evaluation configuration in Rural eMBB. He was the founding Chairman of Optical Access and Transport Study Group (SG3) in TSDSI which developed the CPRI Fronthaul standard. Later he continued as the Vice Chairman of Study Group - Networks (SGN) and coordinated the effort from TSDSI for including a 5G Radio Interface Technology (RIT) or 5Gi from India in ITU-R IMT 2020. Recently, as part of the Indian delegation contributed to the IMT ITU-R IMT-2030 Framework/Vision document. He has filed 18 patents and was awarded the best paper award by IETE in 2006. He has edited the Springer's CSI Transaction on ICT on a special issue on "Wireless in the future" as a guest editor in March 2019.

**Panelist**

**Radhakrishna Ganti**

IIT Madras

**Email ID :** rganti@iitm.ac.in.



**Biography:**

He is currently working as Associate Professor, Indian Institute of Technology Madras. He did his M.Tech. EE. Indian Institute of Technology, Madras, India . B.Tech. EE. Indian Institute of Technology, Madras, India. He Took his Ph.D from University of Notre Dame in the year of 2009. He is presently expertising in Communications Networks, Wireless Communications and Networks. He has over 31 Journal Articles published, 62 Conference Proceedings and 2 Review and more to his achievements.



### Panelist

### Gupteswar Majhi

CDoT

Email ID : mahjig@cdot.in.



### Biography:

Presently working as a Group Leader in Center for Development of Telematics (C- DOT), New Delhi. 22+ years of experience in design and development of Optical products which includes GPON OLTs, ONTs, 2.5G, 40G, 100/200G WDM, OTN cross connect systems. Two decades of experience in developing telecom products, testing and value engineering of those products that are deployed all over India. 15+ years of team lead experience. Experienced in delivering projects and programs of various sizes, technologies. Played a key role in obtaining CMMI level 5 for C-DOT in 2014. Represents C-DOT in Telecom Engineering Center (TEC) for Generic Requirement (GR) review process. A strong believer of the standardization process. Served TSDSI (Telecommunications Standards Development Society of India) as a Vice-Chair, Optical Core and Access Study Group. Contributed to the TSDSI standard “CPRI Fronthaul Standard”.

### Domain Expertise :

A. DWDM and OTN cross connect Line of products : C-DOT has developed 2.5G, 40G, 100G, 200G DWDM systems. The clients of those systems are OTN, Gigabit Ethernet, SDH and Fiber Channel. Lead a team of system architects to finalize system design. Managed project activities to meet technical specifications and deadlines. Also played a key role in deploying the 2.5G/100G DWDM system in the field.

B. CWDM : C-DOT has developed a CWDM system of eight channels capacity with 20 nm spacing as per ITU-T G.694.2 in the wavelength band of 1471 nm to 1611 nm. Designed, developed and tested the system against TEC GR.

C. PON : C-DOT GPON solution comprises ONTs and OLTs. There are many versions of ONTs to cater voice, video, data, E1 services for business and residential customers. Managed the project development lifecycle and deployed the first GPON system in Ajmer, India. GPON is the technology of choice for NOFN(National optical fiber Network).





### Panelist

### Avinash Agarwal

TEC

Email ID : ddgstd.tec@gov.in.



### Biography:

Mr Avinash Agarwal is an Indian Telecom Service (ITS) Officer of the 1992 batch. He has almost 30 years of extensive experience in Telecommunications, Information Technology and Broadcasting while serving in various positions in the Government of India. Presently, he is posted as Deputy Director General (Radio) at Telecommunication Engineering Centre (TEC), Department of Telecommunications, Ministry of Communications, Government of India. TEC is India's Standards Setting Organisation, where his role includes framing standards, guidelines, and test procedures for telecom equipment and emerging technologies. Previously, as Additional Director General (IT) at Prasar Bharati, India's Public Sector Broadcaster, he headed various digital transformation initiatives for the twin networks of Doordarshan and All India Radio and also successfully delivered their Global Digital Platform and NewsOnAir Mobile App. This involved live streaming of 230+ radio channels, live TV, text news in multiple languages, podcasts, etc. He also served as State Head Haryana & Senior GM Bharat Broadband Network Limited for the roll-out of the BharatNet Project under the Digital India initiative for providing Optical Fibre Cable connectivity to 6000+ Gram Panchayats in Haryana. His research interests include ethical aspects of Artificial Intelligence. He is the Chairman of National Working Group-9 related to Broadband Cable and TV. He is also the Vice-Chair of National Working Group-3 related to Economic and Policy Issues of International Telecommunication. He also Chairs the Working Group on Anonymization of Data supported by the Ministry of Electronics & IT. He did his B.E. in Electronics & Communications from MNIT Jaipur in 1992 and M.Tech. in Computer Science & Technology from IIT Roorkee in 1994.

**Panelist**

**A. Raja**

Chennai Patent Office

Email ID : a.raja@nic.in.



**Biography:**

Mr. A. Raja is working as Deputy Controller Of Patents And Designs, (Group A Gazetted Officer) Indian Patent Office, Chennai. He worked as Assistant Controller Of Patents And Designs, (Group A Gazetted Officer) Indian Patent Office, Chennai. Between 2015-2023 he Worked As Examiner Of Patents And Designs, in the field of Electronics, Communications, Computer Science Engineering. He is responsible for many Duties like to Grant Or Reject Patent Applications. He represented the Indian Patent Office in Asean Workshop in the field of Computer Related Inventions And Patenting. He has imparted Technical And Legal Training for around 300 Officers in 2004 At Kuala Lumpur, Malaysia. He has represented The Indian Patent Office at The Wipo Workshop For Patents, Deu Jong, And South Korea in 2014. He graduated from University Of Madras in the Branch Of Computer Science And Engineering and started his career as Lecturer. He completed Post Graduation in M.Tech, Human Resources And Development (HRD), with Distinction at NITTR, Chennai.

**Panelist**

**Balaji Srinivasan**

IIT Madras

Email ID : balajis@ee.iitm.ac.in.



**Biography:**

Balaji Srinivasan obtained his Ph.D. in 2000 from the University of New Mexico, USA. He subsequently worked as a Senior Development Scientist at Corning Incorporated, USA, where he led technology development efforts related to 3D Optical Cross-connects and Channel Selectable Tunable Filters. Since 2004 he has been with the Indian Institute of Technology Madras as a faculty in the Department of Electrical Engineering, presently as Professor. His research interests span the development of active and passive optical components / subsystems for distributed fibre optic sensors and fibre lasers. He has co-authored more than 140 journal and international conference publications, as well as 3 book chapters. He also has 7 patents to his credit (5 more pending). He has successfully executed or currently investigating 24 research projects worth over INR 17 Crores (USD 2.6M) of funding, resulting in the development of 6 technologies, 3 of which have been transferred to industry for commercialization.



### Panelist

#### David Koilpillai

IIT Madras

Email ID : koilpillai@ee.iitm.ac.in.



### Biography:

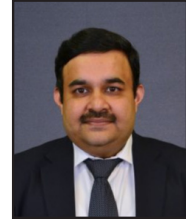
Qualcomm Institute Chair Professor & Head ,Electrical Engineering Department, Indian Institute of Technology Madras. He received his B.Tech degree from IIT Madras, and the MS, PhD degrees (in Electrical Engineering) from California Institute of Technology, Pasadena, USA. He has over three decades of experience in the field of wireless and cellular technologies. In June 2002, he joined IIT Madras and is currently the Head of the Department and the Qualcomm Institute Chair Professor in Electrical Engineering. He served as Dean (Planning) during 2011-2017, handling the portfolios of infrastructure, finance and strategic planning. The period April 2008 – December 2009, he served as the Co-Chair of the IITM special Task Force for setting up the new IIT at Hyderabad. He also served as Head, Central Electronics Centre of IITM during 20010-11. He's technical areas of expertise include cellular and broadband wireless systems, and DSP techniques for wireless communications. He is the Faculty Coordinator of the IITMSAT Student Satellite initiative. During Jan – July 2007, He was on sabbatical from IITM and served as the Chief Scientist, Centre of Excellence in Wireless Technology (CEWiT), a public-private R&D initiative of the Govt. of India, and was responsible for launching the national project – Broadband Wireless Consortium of India (BWCI). He holds several achievements including 32 US patents, 10 Canadian Patents and 19 WIPO/European patents, 2 Indian patents and Over 80 journal and conference publications.

**Panelist**

**Himamshu Khasnis**

Signalchip

**Email ID :** himu@signalchip.com.



**Biography:**

He is the founder and CEO of signalchip. He brings in an experience of more than 21 years in the Semiconductor Industry. He has played key roles in technology roadmap and new chipset definitions for 3G/4G/5G/DSL/WLAN/GNSS applications and has led the chip development activities for multiple successful market leading chips. After a successful career at TI and Ittiam, in 2010 He founded Signalchip, one of the very few fabless semiconductor companies from India. Under His leadership, Signalchip has grown from a garage startup with two people to a 40 people strong organization encompassing all competencies of SoC (System on Chip) development and has developed its first semiconductor chipset "Agumbe" for complex wireless networking standards. Such a device is a first of its kind to be made by an Indian Company. He specializes in optimal solutions for Communication/Signal Processing /Mixed Signal and RF architectures and has filed more than fifteen patents in these fields.



### Panelist

## Rajkumar Upadhyay

CDoT

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### Biography:

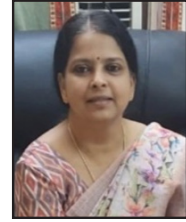
Dr. Rajkumar Upadhyay, an officer of the Indian Telecommunication Services (ITS) of Government of India, is the Chief Executive Officer and Chairman Board, C-DOT. His previous assignments include Additional Director General & Head South India in Prasar Bharati, Deputy Director General, DOT and Advisor Telecom with Telecom Regulatory Authority of India (TRAI). He also worked in various capacities in BSNL and in DRDO as Scientist. He was Chairman of the working group on 'Policy and Regulation for South Asian Regulators Council (SATRC) during 2011-12. Dr. Rajkumar Upadhyay is a Governing Council Member of Telecommunications Standards Development Society of India (TSDSI), Broadband India Forum (BIF), Telecom Export Promotion Council (TEPC) and Telecom Centre of Excellence (TCOE). He is the Chairman of New Technology Committee of BIF and member of the TSDSI Standing Committee on Standardization & Transposition. He holds a Ph.D. in Corporate Strategy & Policy and MBA from IIM Bangalore, M. Tech from IIT Roorkee and a certificate in International Public Policy from Syracuse University, USA. He is a winner of several awards including: J.C. Bose award (1987) by Ministry of Defence, National e-Governance award (2007) by Government of India, CIO 100 award (2007), by International Data Group (IDG), Deepak C. Jain Award (2009) by IIM Bangalore.

**Panelist:**

**Deepa Venkitesh**

IIT Madras

**Email ID :** deepa@ee.iitm.ac.in.



**Biography:**

Deepa Venkitesh obtained her Masters degree in Physics from the University of Kerala and PhD from IIT Bombay. She has worked in SAMEER Mumbai, VES College of Arts Science and Commerce Mumbai before joining the Indian Institute of Technology Madras. She is currently a Professor in the Department of Electrical Engineering, IIT Madras. Her areas of research interest include coherent optical communication and photonic signal processing for analog and digital systems. She has published over sixty articles in international peer reviewed journals and many more in conferences. She was bestowed with the Young Faculty Recognition Award of IIT Madras in 2012, and the Abdul Kalam Technology Innovation Fellowship of INAE in 2021. She is Senior Member of OSA, and is currently the Associate Editor of the OSA journal- Advances in Optics and Photonics, and Editorial Board member of the IET Optoelectronics. She is also currently the Associate Vice President of “Women in Photonics” of the IEEE Photonics Society. She is also the National Coordinating Faculty for the Prime Ministers Research Fellowship program.



**Panelist:**

**Badri Gomatam**

STL, India

**Email ID :** badri.gomatam@stl.tech.



**Biography:**

He is the Chief Technology Officer, Telecom at Sterlite Technologies Ltd. Camarillo, California, United States. He is a business and Technology professional with experience in managerial and business roles in Networking/Telecom Systems, IC, Photonics, and related industries. His Domain expertises are in photonics and interconnect subsystems architecture in Server, Transport/WDM, Enterprise Networking and Access/PON and Storage communications markets, Comprehensive long- and short-range view of new technologies, trends and potential market impact in above areas. He is an experienced strategist in corporate product development as well as sponsored Government/DoD programs, sustained and grew a portfolio of optoelectronic and IC product lines to a several multi-million dollar business in optical and wired communications. He also Initiated and promoted efforts within industry standards bodies including SFP+, IEEE (10/40/100G Ethernet), ANSI-T11 (Fibre Channel), ITU-T (Transport) and FSAN (GPON) to standardize new IC technologies in fibre communications. He is the Marketing Chair for Ethernet Alliance 10GB ASE-KR Working Group.

**Panelist:**

**Atul Kumar Gupta**

CDoT

**Email ID :** akg@cdot.in.



**Biography:**

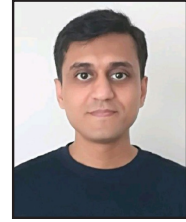
Atul Kumar Gupta has more than 30 Years of experience in the design and development of Optical Communication based products. He has worked on design of Synchronous Digital Hierarchy (SDH) based systems, Fiber Access System, Optical Amplifiers, Giga-bit capable Passive Optical Network (GPON), Dense Wavelength Division Multiplexing (DWDM) equipment, Quantum key Distribution (QKD) etc. He holds B.E. (Electronics and Communication) from DCE, Delhi and M.Tech. (Opto-electronics and Optical Communication) from IIT, Delhi and is currently designated as Head (Optical Technologies) at C-DOT.

**Panelist**

**Ravi Mehta**

Quanfluence

**Email ID :** ravi.mehta@quanfluence.com.



**Biography:**

He is the Co-Founder of Quanfluence. He has served as Sr. Manager, Analog and Mixed Signal Circuit Design at Synopsys also Co-founder and VP (IP) at Silabtech Pvt Ltd. He completed his Bachelor of Engineering (B.E.) (Electronics & Telecommunication) from College of Engineering Pune. Currently Working on photonics for quantum information processing. Experienced in advanced semiconductor product design for high speed communications, in particular ultra high speed optical and electrical interfaces.

**Panelist:**

**Abhishek Dixit**

IIT Delhi

**Email ID :** abhishek.dixit@iitd.ac.in.



**Biography:**

He is a IEEE EDS Distinguished Lecturer, Editor IEEE-Transactions on Device and Materials Reliability, Philips (NXP) Chair Professor, and currently in Department of Electrical Engineering, Indian Institute of Technology, Delhi. He works in the area of integrated circuits (IC). He received the M.Tech. degree in Opto-electronics and Optical Communication from Indian Institute of Technology (IIT) Delhi in 2010 and the Ph.D. degree in Computer Science Engineering from Department of Information Technology (INTEC), Ghent University, Belgium, in 2014. Since 2015, he has been an Assistant Professor at IIT Delhi where he has taught courses related to Communications Engineering and Networking. He has also taken an NPTEL course on Principles of Digital Communications. Before joining IIT Delhi in December 2015, he served for a semester (July 2015 - December 2015) as an Assistant Professor at IIT Mandi and as a Post-doctoral Researcher (December 2014 - June 2015) at Ghent University, Belgium. He is leading research activities at IIT Delhi in the area of optical communications and networking. In this context, he has been involved in the large number of Indian projects. He has also carried out several consultation projects in the area of railway signalling. He has published over 30 international journal articles (IEEE JSAC, IEEE Communication. Mag., Journal of Lightwave Technology, Journal of Optical Communications and Networking, IEEE Networks, IEEE Transactions on Network and Service Management, IEEE Access, IEEE Open Journal of the Communication Society) and over 50 publications in international conferences.





**Panelist:**

**Kumar Sivarajan**

Tejas Networks

**Email ID :** kumar@tejasnetworks.com.



**Biography**

Kumar is the founder and CTO of Tejas networks. He has nearly 3 decades of experience in the field of telecommunications. He is a fellow of the Indian National Academy of Engineering. In 2000, he received the Swarnajayanti fellowship from the DST, GOI, which is awarded to outstanding young scientists to pursue basic research in frontier areas of science and technology. kumar has co-authored the bestselling book titled "Optical Networks: A practical perspective" which is currently in its third edition. He is also a recipient of the prestigious IEEE W.R.G Baker prize award in 1997. which is presented for the outstanding paper reporting original work in the transactions journals and magazines of the societies. In the year 2021 he was elevated to IEEE fellow status for extraordinary and continued contributions to the field of optical networking. He is the recipient of the best CTO award from ET telecom in 2022. Kumar was the first chairperson of the governing council of telecommunication standards development Society India which is an organisational partner of 3GPP, the global standards but it is possible for formulating 5G standards. Prior to joining Thejas he was an associate professor at the IISc Blore and also staff member at IBM Thomas Di Watson research Centre New York. Kumar was a BTech in electrical engineering from the Indian of technology Madras and an MS & PhD from the California Institute of technology USA. At Caltech he was selected for the IEEE Charles LeGeyt scholarship, an annual award given to only one first year graduate student of Electrical engineering studying in the USA Kumar received the distinguished Alumnus award from IIT Madras in 2013.

**Panelist:**

**Bharat Goel**

Tata Communications

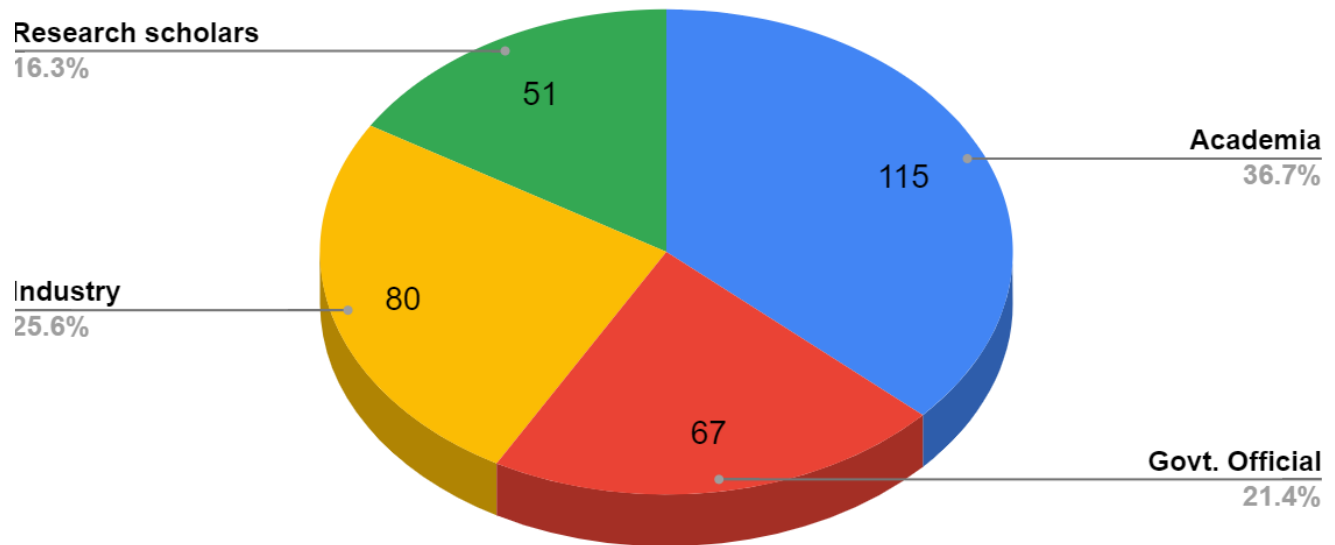
**Email ID :** bharat.goel@tatacommunications.com.



**Biography:**

Associate Vice President at Tata Communications. He completed his Bachelor of Technology (B.Tech.), Electronics and Communications Engineering from NIT Jalandhar. Tata Communications is a digital ecosystem enabler that powers today's fast-growing digital economy.

## Distribution of In person participants





**List of Registered In-Person Participants :**

SI No	Name	Institution Name	Participation Type
1	Aathmanesan T	Vel Tech University	Academia
2	Abhijit Mitra	IIIT Delhi	Academia
3	Abhishek Dixit	IIT Delhi	Academia
4	Abirami A	Government Polytechnic College, Tamil Nadu	Academia
5	Adithya Balasubramanyam	PES University	Academia
6	Amol Choudhary	Indian Institute of Technology	Academia
7	Anand K	Gnanamani College of Technology	Academia
8	Anandpushparaj	SRMIST, Tiruchirapalli Campus	Academia
9	Anantha	JP COLLEGE OF ARTS AND SCIENCE	Academia
10	Anil Prabhakar	IIT Madras	Academia
11	Annamalai P	Jaya Sakthi Engineering College	Academia
12	Aravinda Babu T	Chaitanya Bharathi institute of technology	Academia
13	Aravinda Rajan V	Kalasalingam Academy of Research and Education	Academia
14	Aruna Kumari Poleti	Gayatri Vidya Parishad College of Engineering (Autonomous)	Academia
15	Arunkumar N	SNS College of Technology	Academia
16	Ashok Kumar Patil	PES University	Academia
17	Ashok Kumar S	Rajalakshmi Institute of Technology	Academia
18	Ashok P	Symbiosis Institute of Digital and Telecom Management	Academia
19	Ashuthosh Velmuri		Academia
20	B Elizabeth Caroline	IFET College of Engineering	Academia
21	Balaji Prasad M	LRG Government Arts College for Women Tiruppur	Academia
22	Balaji Srinivasan	IIT Madras	Academia
23	Balraj B	K.Ramakrishnan College of Technology	Academia
24	Baskaran M	Sri Sai Ram Engineering College	Academia
25	Bijoy K Das	IIT Madras	Academia
26	Bino J	St Joseph's Institute of Technology	Academia
27	Chandra Prakash	University of engineering and management Jaipur	Academia
28	Chettiyar Vani Vivekanand	RMK College of Engineering and Technology	Academia

SI No	Name	Institution Name	Participation Type
29	Chika K Gangadharan	MES College Marampally	Academia
30	Christina Dally E	SNS College of Technology	Academia
31	David Koilpillai	IIT Madras	Academia
32	Deepa Venkitesh	IIT Madras	Academia
33	Ganesh R S	RMK Engineering College	Academia
34	Gokulakrishnan K	College of Engineering, Guindy, Anna University, Chennai	Academia
35	Gyan Deep Verma	Indian Institute of Technology Delhi	Academia
36	Hemanth C	Vellore Institute of Technology Chennai	Academia
37	Inbamalar T M	R.M.K. College of Engineering and Technology	Academia
38	Irshad Ahamed M	EGS Pillay Engineering College, Autonomous	Academia
39	Jagadesh M	SNS College of Technology	Academia
40	Jayanthi S	R.M.D Engineering College	Academia
41	Kannan A	Rajiv Gandhi College of Engineering and Technology	Academia
42	Kannan R	SAVEETHA ENGINEERING COLLEGE	Academia
43	Karthick S	Erode Sengunthar Engineering College	Academia
44	Kavitha Balamurugan	KCG College of Technology	Academia
45	Kavitha D	Easwari Engineering College	Academia
46	Konda Ramachandra Reddy	St.JOSEPH'S COLLEGE OF ENGINEERING	Academia
47	Krishna Kishore	vasavi college of engineering	Academia
48	Kurra Upendra Chowdary	R.V.R & J.C College of Engineering	Academia
49	Lakshmi Narayanan Venkatasubramani	Dublin City University	Academia
50	Malathi M	IITM	Academia
51	Malleswari M	Vel Tech High Tech Dr.Rangarajan Dr.Sakunthala Engineering College	Academia
52	Maramu N	Kakatiya institute of technology and science warangal	Academia
53	Margarat Michael	IFET COLLEGE OF ENGINEERING	Academia
54	Mariyappan M	Dr Mahalingam College of Engineering and Technology	Academia
55	Markkandan S	Vellore Institute of Technology	Academia
56	Meena Jeyanthi K	PSNA College of Engineering and Technology	Academia



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SI No	Name	Institution Name	Participation Type
57	Meenakshi Krishnaveni	Sri Venkateswaraa college of Technology	Academia
58	Meenakshi M	College of Engineering Guindy	Academia
59	Murugesan K	Loyola Institute of Technology	Academia
60	Navaneethan S	Saveetha Engineering College	Academia
61	Nithyanandan Kanagaraj	IIT Hyderabad	Academia
62	Padmavathi B	Easwari Engineering College	Academia
63	Padmini Bhat	St.Joseph Engineering College	Academia
64	Poomurugan R	Gnanamani College of Technology	Academia
65	Poornima P	Sri Sairam Engineering College	Academia
66	Prabhu Kumar S	Vel Tech Multi Tech Dr.Rangarajan Dr.Sakunthala Engineering College	Academia
67	Prakash P	Sri Sairam Engineering College	Academia
68	Prakasha G	SVCE, Bengaluru	Academia
69	Praveen Kumar	Easwari Engineering College	Academia
70	Priyadharshini R	Sri Venkateswara college of Engineering	Academia
71	Radha Krishna Ganti	IIT Madras	Academia
72	Ragavi B	Dr.N.G.P Institute of Technology	Academia
73	Ragothaman M	Sri Manakula Vinayagar Engineering College	Academia
74	Rakesh Ranjan	National Institute of Technology Patna	Academia
75	Ranjani Aruna A	College of Engineering Guindy	Academia
76	Rathinakumar P	SRM Institute of Science and Technology	Academia
77	Roshni Alex	MES COLLEGE MARAMPALLY	Academia
78	Ruba	Sethu Institute of Technology	Academia
79	Sagadevan K	IFET College of Engineering	Academia
80	Sahana Sharma	K.S. Institute of Technology, Bangalore	Academia
81	Sai Krishna Kondoju	Chaitanya Bharathi Institute of Technology (Autonomous)	Academia
82	Sakshi Dubey	IIT Delhi	Academia
83	Sandeep Kumar Singh	IIT Roorkee	Academia
84	Sangeetha R G	VIT University Chennai Campus,	Academia
85	Sanmugasundaram Ravichandran	Rajalakshmi Institute of Technology	Academia
86	Saravanan S	M.A.M. School of Engineering	Academia

SI No	Name	Institution Name	Participation Type
87	Sathish Kumar G	P.T.Lee Chengalvaraya Naicker College of Engineering and Technology	Academia
88	Sathish Kumar R	SNS College of Technology	Academia
89	Satyabrata Singha	Bharat Institute of Engineering and Technology	Academia
90	Selvakumar S	Thamirabharani Engineering College	Academia
91	Selvan P	Erode Sengunthar Engineering College	Academia
92	Selvarajan Rajalakshmi	Vellore Institute of Technology Vellore	Academia
93	Senthil Singh C	INFANT JESUS COLLEGE OF ENGINEERING	Academia
94	Shailendra K Varshney	IIT Kharagpur	Academia
95	Shalabh Gupta	IIT Bombay	Academia
96	Shankar Selvaraja	IISc Bangalore	Academia
97	Shanmugapriya K	Sethu Institute of Technology	Academia
98	Shanmugapriya M	College of Engineering Guindy	Academia
99	Shareena E M	MES College Marampally, Aluva	Academia
100	Sheeja R	Easwari Engineering College	Academia
101	Sheela S	Rajalakshmi Institute of Technology	Academia
102	Shemi P M	MES College Marampally, Aluva	Academia
103	Shu Namiki	AIST Japan	Academia
104	Sivakumar S	Rajiv Gandhi College of Engineering and Technology	Academia
105	Sofia Priya Dharshini J	Rajeev Gandhi Memorial College of Engineering and Technology	Academia
106	Sonali	IIT Delhi	Academia
107	Srinivasan	Presidency College	Academia
108	Srinu Pyla	Gayatri Vidya Parishad College of Engineering (Autonomous)	Academia
109	Sudhakar	Veltech Hightech Dr Rangarajan Dr Sakunthala engineering college	Academia
110	Sudharsanan Srinivasan	IIT Madras	Academia
111	Sudipta Chakraborty	Techno India Group	Academia
112	Surya Karmakar	IIT Bombay	Academia
113	Syedakbar S	K RAMAKRISHNAN COLLEGE OF TECHNOLOGY	Academia
114	Tanya Verma	Rajiv Gandhi Institute of Petroleum Technology	Academia



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SI No	Name	Institution Name	Participation Type
115	Vasanthi M S	SRMIST, KTR	Academia
116	Venkatesh	IIT Madras	Academia
117	Vijayakumar P	Vellore Institute of Technology	Academia
118	Vinod Kiran Kappala	VIT-AP University	Academia
119	Vinoth Kumar K	New Horizon College of Engineering	Academia
120	Preeti Jhari	BEL, Central research Laboratory	Govt Official
121	Abhishek Jain	DRDO	Govt. Official
122	Abhishek Sharma	SSPL, DRDO (Ministry of Defence)	Govt. Official
123	Akriti Katiyar	CDoT	Govt. official
124	Akshdeep Sharma	CDAC	Govt. Official
125	Amit Shrivastava	DRDO	Govt. official
126	Amita Singh	SAC, ISRO	Govt. Official
127	Arul Prabahar A	NSIC	Govt. Official
128	Ashish Jain	SAC, ISRO	Govt. Official
129	Ashok Kumar	DEAL DRDO	Govt. Official
130	Atul Kumar Gupta	Centre for Development of Telematics	Govt. Official
131	Avinash Agarwal	TEC	Govt. official
132	B S Murthy	BSNL Chennai	Govt. Official
133	Bhupendra Suman	DRDO	Govt. Official
134	Deepika Saini	CDoT	Govt. official
135	Dindayal Tosniwal	DoT	Govt. Official
136	Doupati Priyanka	Tkr institution	Govt. Official
137	Elankannan Jayaprakash	Bhabha Atomic Research Center	Govt. Official
138	Gayatri Parthasarathy	CRL, BEL	Govt. Official
139	Gunjan Dave	DoT	Govt. official
140	Gupteswar Mahji	CDoT	Govt. Official
141	Himanshu	RECPDCL	Govt. Official
142	Jitender Singh		Govt. Official
143	Kashish Anand	Centre for Development of Telematics (C-DOT)	Govt. Official
144	Khansa Ca	Defence Research and Development Organisation	Govt. Official
145	Koushik Bask	SAC, ISRO	Govt. Official
146	L C Mangal	DEAL	Govt. official

SI No	Name	Institution Name	Participation Type
147	Latha	SDSC SHAR	Govt. Official
148	Luv Goyal	CDoT	Govt. official
149	Magesh E	CDAC	Govt. Official
150	Mahesh Kumar Gupta	RAILTEL CORPORATION OF INDIA LIMITED	Govt. Official
151	Meera Dasan	DRDO	Govt. official
152	Murali Mohan P	BSNL Chennai	Govt. Official
153	Nitin Gupta	DRDO	Govt. Official
154	Nitin Premlal Kumare	MECON Limited	Govt. Official
155	Palash Joshi	SAC, ISRO	Govt. Official
156	Parthiban S	DoT	Govt. Official
157	Paventhan A	ERNET India	Govt. Official
158	Prakhar Srivastava	ISRO	Govt. official
159	Pranav Kumar Pandey	SAC, ISRO	Govt. Official
160	Raja A	CGPTDM	Govt. official
161	Rajendra Kumar T	ISRO	Govt. Official
162	Rajkumar Upadhyay	CDoT	Govt. official
163	Ravinder Ambardar	C-DOT	Govt. Official
164	Ritu Ranjan Mittar	TEC	Govt. official
165	Saloni Singhal	CDoT	Govt. official
166	Sanjay Kumar Verma	C-DOT (CENTRE FOR DEVELOPMENT OF TECHNOLOGY)	Govt. Official
167	Sanjay Varshney	DoT	Govt. Official
168	Sanjeev Sharma	O/o MoSC	Govt. Official
169	Senthil Kumar M	SAC, ISRO	Govt. Official
170	Shishir Shrotriya	Govt	Govt. Official
171	Sreehari C V	NPOL, DRDO, Kochi, Kerala	Govt. Official
172	Srikanth	DoT	Govt. Official
173	Srinivas Reddy B	Aeronautical Development Agency	Govt. Official
174	Subhash Chandra Babu K	Indian Railways Institute of Signal Engineering and Telecommunication	Govt. Official
175	Sudhakar	DoT	Govt. Official
176	Sunil S Kushwaha	ISRO	Govt. official





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SI No	Name	Institution Name	Participation Type
177	Talachutla Krishnamurthy Naidu	Indian Space Research Organisation (ISRO)	Govt. Official
178	Thamizhmani D	BSNL	Govt. Official
179	Tushar Rastogi	DoT	Govt. Official
180	Venaiah M	DoT	Govt. Official
181	Vijay Krishnamoorthy	Department of Telecommunications Tamilnadu LSA Chennai	Govt. Official
182	Vijay Kumar	DRDO	Govt. Official
183	Vinod C V	BSNL	Govt. Official
184	Vipul	Bharat Electronics Limited	Govt. Official
185	Viswa Chaitanya Reddy P	Department of Telecommunications	Govt. Official
186	Vivek Kumar	CDoT	Govt. official
187	Yesho Nagaraju	CDAC	Govt. Official
188	Abhishek Suryawanshi	HFCL Limited	Industry
189	Aman Kumar	New Age Instruments & Materials Pvt Ltd	Industry
190	Amitabh Singh	HTL Ltd	Industry
191	Anandraraman Sankaran	Toshiba	Industry
192	Anantharaman Jaychandran	Aheesa Digital Innovations Private Limited	Industry
193	Anil Lagad	HTL	Industry
194	Aravindhnan S	IIT madras	Industry
195	Arthanarieswaran A R	HFCL	Industry
196	Arunkumar M	Tejas Networks	Industry
197	Arvin A	Ribbon Communication	Industry
198	Arvind Mishra	STL	Industry
199	Ashish Kumar	HTL Limited	Industry
200	Badri Gomatam	STL	Industry
201	Balaji Selvamani	Syrmasgs technology limited	Industry
202	Balakrishnan P	Tejas Networks	Industry
203	Bharat Goel	Tata Communications	Industry
204	Biman	Quanfluence	Industry
205	Chaitanya Thiske	Blueberry Semiconductors Private Limited	Industry
206	Darshan Gondaliya	Nav Wireless Technologies	Industry

SI No	Name	Institution Name	Participation Type
207	Deepak Solani	Velmenni	Industry
208	Devin Ryan Pearl	DECIPEARL	Industry
209	Doss Prakash V	National Institute of Ocean Technology	Industry
210	G Arnav Naidu	HFCL Limited	Industry
211	Gajendra Singh	HTL Ltd	Industry
212	Gs Naidu	HTL	Industry
213	Hardik Soni	Nav Wireless Technologies	Industry
214	Harish	Impiger IT solutions	Industry
215	Harish Tiwari	New Age Instruments & Materials Pvt Ltd	Industry
216	Himamshu Khasnis	Signalchip Innovations Pvt. Ltd.	Industry
217	Jaiganesh	Nttdata	Industry
218	James S	Equate S	Industry
219	Jayesh	Quanfluence	Industry
220	Jegan	HCLTech Ltd	Industry
221	Jeswin Mathews	Kerala state IT mission	Industry
222	Jishnu Aravindakshan	Tejas Networks	Industry
223	Joydip Dutta	IC&SR	Industry
224	Kalyani K	LEOS- ISRO	Industry
225	Kashyap Mer	Nav Wireless Technologies	Industry
226	Kaushal Kumar Singh	HTL	Industry
227	Kota Anjaneya Sharma	Tejas Networks	Industry
228	Krishna Kumar	SASMOS	Industry
229	Kumar Sivarajan	Tejas Networks	Industry
230	Mahendra Nahata	HFCL	Industry
231	Naren	Equate S	Industry
232	Naresh Kumar G	Microchip Technology India pvt ltd	Industry
233	Nikhil B G	Signalchip Innovations Pvt. Ltd.	Industry
234	Pankaj Kumar	RAJLEE ELECTRONICS AND INNOVATIONS PVT LTD	Industry
235	Parmeshwar	UTL Limited	Industry
236	Pavalaraj S	Fujifilm	Industry
237	Pinto Xavier	ACL Digital , Siemens contractor	Industry
238	Pradheesh R J	Aheesa Digital Innovations Private Limited	Industry



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SI No	Name	Institution Name	Participation Type
239	Pramod Agrawal	HFCL	Industry
240	Raghul	Robert Bosch	Industry
241	Rajaram Ghosh	UTL Limited	Industry
242	Rajesh Kumar A	Tactrix Opto Dynamics	Industry
243	Rakhi Sanker	Tactrix Opto Dynamics	Industry
244	Ramesh Babu	UTL India	Industry
245	Ramesh Nair	HTL	Industry
246	Ravi Mehta	Quanfluence	Industry
247	Ravikumar Keshavappa	LEOS -ISRO	Industry
248	Rohan Rajasekaran	Transcelestial	Industry
249	Sahana M	Tata Consultancy Services	Industry
250	Saikumar Reddy Seelam	Microland Ltd	Industry
251	Sailesh Natarajan	Ribbon communications	Industry
252	Saipratheep Balasundaram	Aheesa Digital Innovations Private Limited	Industry
253	Sajan Tom	HTL Limited	Industry
254	Samuel Varghese	SFO Technologies Pvt Ltd	Industry
255	Senthil Rajan	HFCL Limited	Industry
256	Shankar S	HFCL	Industry
257	Sheela D	Bharat Electronics Limited	Industry
258	Shobana U	Innogle Technologies Pvt Ltd	Industry
259	Siva Kumar	HINDUSTAN OIL EXPLORATION COMPANY LIMITED	Industry
260	Suarj Acharya	HTL	Industry
261	Sudipta Bhaumik	STL	Industry
262	Suneet Saxena	HFCL	Industry
263	Suraj Acharya	HTL Ltd	Industry
264	Suriyha Prakyesh	HFCL	Industry
265	Swaminathan Ramachandran	Aheesa Digital Innovations Private Limited	Industry
266	Tapan Sharda	New age instruments Pvt Ltd	Industry
267	Thirulogchandar	HTL Limited	Industry
268	Ujjwal Minocha	Velmenni	Industry

SI No	Name	Institution Name	Participation Type
269	Umesh	UTL India	Industry
270	Uthayashankar V	Finaara Technologies Pvt LTD	Industry
271	Vaibhav Khanna	STL	Industry
272	Vijayagopalan Raveendran	AutonomaZ	Industry
273	Vikram Chandrasekaran	Qualcomm	Industry
274	Ajith J	IIT Bombay	PhD Scholar, R&D Engineer
275	Akhilesh Patel	IIT Kanpur	PhD Scholar, R&D Engineer
276	Amit Kumar	Microchip Technology	PhD Scholar, R&D Engineer
277	Anant Goyal	IIT Madras	PhD Scholar, R&D Engineer
278	Ankur Kumar	CDOT delhi	PhD Scholar, R&D Engineer
279	Arnab Goswami		PhD Scholar, R&D Engineer
280	Ashish Kumar Pandey	Centre for Development of Telematics	PhD Scholar, R&D Engineer
281	Chirukuri Bhargav Naidu	Capgemini	PhD Scholar, R&D Engineer
282	Deepika	Center for development of telematics	PhD Scholar, R&D Engineer
283	Devakumar R	BigCat wireless PVT LTD	PhD Scholar, R&D Engineer
284	Dibyanchal Sahu	Indian Institute of Technology Madras	PhD Scholar, R&D Engineer
285	Divakar Keshri	Nit Trichy	PhD Scholar, R&D Engineer
286	Faheem Ahmed	IISc Bangalore	PhD Scholar, R&D Engineer
287	Geethakrishnan	IIT Madras	PhD Scholar, R&D Engineer
288	Hari Ganivada	AGNIKUL COMPANY	PhD Scholar, R&D Engineer
289	Hemanth Kumar Dontiboina	Indian Institute of Technology Madras	PhD Scholar, R&D Engineer



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SI No	Name	Institution Name	Participation Type
290	Kanishk	EmbedUR systems	PhD Scholar, R&D Engineer
291	Kishan J	Saipem India Projects	PhD Scholar, R&D Engineer
292	Komal Ojha	Indian Institue of Technology Bombay	PhD Scholar, R&D Engineer
293	Krishnamariselvi T	Anna University	PhD Scholar, R&D Engineer
294	Mithun P V	intel technologies Pvt Ltd	PhD Scholar, R&D Engineer
295	Mohamed Mukthar M	L&T Technology and services	PhD Scholar, R&D Engineer
296	Mohit Agarwal	STL digital	PhD Scholar, R&D Engineer
297	Mujeeb Ul Rehman	IIT MADRAS	PhD Scholar, R&D Engineer
298	Pavan Kumar Kotnani	Microchip Technology India Pvt. Ltd	PhD Scholar, R&D Engineer
299	Pranat Kumar Panda	Indian Institute of Technology, Madras	PhD Scholar, R&D Engineer
300	Prashant Sharma	Centre for Development of Telematics	PhD Scholar, R&D Engineer
301	Raagav S R	Immugenix Biosciences Pvt Ltd	PhD Scholar, R&D Engineer
302	Rajasekhar Dasari	IIITDM Kancheepuram	PhD Scholar, R&D Engineer
303	Rana Kumar Jana	IIIT-Delhi	PhD Scholar, R&D Engineer
304	Rana Pratap	IIT Madras	PhD Scholar, R&D Engineer
305	Ravi Roushan Kumar	IIT(ism) dhanbad	PhD Scholar, R&D Engineer
306	Roshan Lal Makkar	SAMEER	PhD Scholar, R&D Engineer
307	Sachith S	Seg Automotive	PhD Scholar, R&D Engineer
308	Sameer Ahmad Mir	IIT Madras	PhD Scholar, R&D Engineer

SI No	Name	Institution Name	Participation Type
309	Shyam Krishnan	Data patterns india LTD	PhD Scholar, R&D Engineer
310	Sivarajan R	National Institute of Technology Tiruchirappalli	PhD Scholar, R&D Engineer
311	Sowmyaa Vathsan M S	Madras Institute of Technology, Anna University	PhD Scholar, R&D Engineer
312	Suhas Nayak	Intel India Technology Pvt Ltd	PhD Scholar, R&D Engineer
313	Suresh Chejarla	IIT Madras	PhD Scholar, R&D Engineer
314	Tamilarasan K	Hitachi Energy	PhD Scholar, R&D Engineer
315	Thejas V	KPIT	PhD Scholar, R&D Engineer
316	Thiviya Kannan	Kone elevators pvt ltd	PhD Scholar, R&D Engineer
317	Vadiraja A	PES University	PhD Scholar, R&D Engineer
318	Vamshi Bharadwaj M V	Dynapac	PhD Scholar, R&D Engineer
319	Vijayakumar K	FISKER	PhD Scholar, R&D Engineer
320	Yashwant Reddy R	ERNET India	PhD Scholar, R&D Engineer
321	Soumyadeep Maity	Chandigarh University	Student
322	Vishal S J	SASTRA UNIVERSITY	Student
323	Anoopa	CUSAT	Volunteer
324	Aravind Raja	DoT	Volunteer
325	Arjun Kurur	IIT Madras	Volunteer
326	Ashuthosh	IIT Madras	Volunteer
327	Gk	IIT Madras	Volunteer
328	Madhan	IIT Madras	Volunteer
329	Mandeep Singh	IIT Madras	Volunteer
330	Mrudula	IIT Madras	Volunteer
331	Nilesh	IIT Madras	Volunteer
332	Pavithra	IIT Madras	Volunteer



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SI No	Name	Institution Name	Participation Type
333	Prem Kumar Raja	DoT	Volunteer
334	Rana	IIT Madras	Volunteer
335	Sameer	IIT Madras	Volunteer
336	Siva	IIT Madras	Volunteer
337	Sreeraj	IIT Madras	Volunteer
338	Vilashini	IIT Madras	Volunteer
339	Akhil	IIT Madras	Volunteer
340	Anagha	IIT Madras	Volunteer
341	Kishore	IIT Madras	Volunteer



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Day 1 QR Code



Day 2 QR Code





