## **ICOE** 2012

# **ICOE 2012**

### **INTERNATIONAL CONFERENCE on OPTICAL ENGINEERING**

(IEEE approved)

www.icoe2012.org



### 26 to 28 July, 2012

**VTU Campus** Belgaum, Karnataka, INDIA.

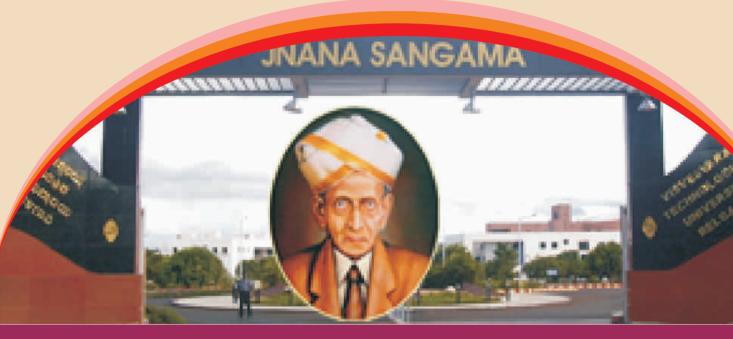


**Organized by** 

Visvesvaraya Technological University

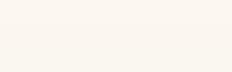
Belgaum-590018, Karnataka, India.

**Technically Supported by IEEE Photonics Society, Bangalore Chapter** Indian Institute of Science, Bangalore-560012, Karnataka, India.





**INTERNATIONAL CONFERENCE on OPTICAL ENGINEERING** 



IEEE



IEEE, Bangalore Chapter





Film native Example Eagle Photonics

**EXHIBITORS & SUPPORTERS** 





**INDIAN SOCIETY FOR TECHNICAL EDUCATION** 

### About Visvesvaraya Technological University:

Established in 1998, the strength and energy to Visvesvaraya Technological University is the vision that diversity of opinions, exploration and experimentation would pave way for emergence of ideas, a premise derived from the ideals of Dr. Sir. M. Visvesvaraya. VTU Act 1994. All the Engineering Colleges which were affiliated to different Universities in Karnataka were brought under one roof and the common curriculum was introduced. Young at thirteen years, magnitude of growth registered by the University is magnificent. Number of affiliated colleges which were only 68 at the time of its inception multiplied over these few years and presently stands at whopping 193. High caliber academic initiatives coupled with technological support has made the VTU a pioneer University in bringing about technological knowledge revolution in the state of Karnataka.

### **About IEEE:**

IEEE is the global society of electrical, electronics, communication and information engineering, with wide ranging interests. IEEE Bangalore section is one of the progressive unit with over 6000 members. IEEE Photonics Society is established in 2010 and has become very active quickly. Several programmes are being conducted since inception, such as technical talks, workshops, tutorials and several outreach programs. The chapter has members from leading premier institutions of India such as Indian Institute of Science, Defence Research and Development Organization, Indian Space Research Organization, several private photonics related companies. Recently the society chapter has put efforts to organize photonics research and educational activity in India.

#### About the conference

In order to dissimilate knowledge among scientists and engineers working in these areas and provide a platform for interaction between them, Visvesvaraya Technological University, Belgaum is organizing the International Conference on optical engineering (ICOE 2012) with support of IEEE photonics society, Bangalore. ICOE is being held on July 26, 27 & 28,2012 at Belgaum, India. It is a three day International Conference exclusively dedicated to the field of Optical Engineering and its applications in many areas. The conference will focus on the need of basic studies, applications and will address the novel issues. Renowned in the field, will discuss recent advances and innovations in the field of optical engineering. The conference will feature the keynote addresses, invited talks, contributed lectures and paper presentations focusing on specific trends in the field of optical engineering. This conference is approved by IEEE & listed in the database of IEEE conference search.

#### The topics of interest are listed below:

- Optical devices and components
- Optical communication
- Optical networks
- Optical sensors
- Optical signal processing and computing
- Optical materials and technology
- Optical instrumentation
- Optical systems and subsystems
- Optical integrated circuits
- Quantum optics and photonics
- Nonlinear optics
- Nano and bio photonics
- Next generation integrated optical and wireless networks
- Optical wireless systems and applications
- Photonics and digital technologies for multimedia applications
- Interdisciplinary and related areas in optics and applications.

### **CONFERENCE SCHEDULE**

### DAY 1

TIME	26-7-2012( Thursday )
8:30 – 9:00 AM	Breakfast
9:00-10:00 AM	Registration
10:00- 11:30 AM	Tutorial 1: Next Generation Optical Networks: Dr.Balagangadhar, Comubia University, USA
11:30-11:40 AM	Tea break
11:40AM – 1:10 PM	Tutorial 1Continued: Next Generation Optical Networks: Dr.Balagangadhar, Comubia University, USA
1:10-2:00 PM	Lunch
2:00 – 4:00 PM	Tutorial 2 :Photonic Sensors: Dr. J.Nayak ,RCI, Hyderabad
4:00 – 4:10 PM	Tea break
4:10 – 5:10 PM	Tutorial 2 Continued :Photonic Sensors Dr. J.Nayak ,RCI, Hyderabad

### **DAY 2**

TIME	27-7-2012( Friday)		
Room number	PGSB 106	PGSB 107	PGSB 110
8:30 - 9:00 AM	Registration		
9:00 – 10 :00 AM	Inaguration (Conference Hall)		
10:00 – 10:45 AM	Keynote speech (Conference Hall) by Dr. R.K.Shevgaonkar, IIT Delhi		
10:45-11:00 AM	Tea break		
11:00- 11:30 AM	Invited talks 1	Invited talks 2	Invited talks 3
11:30 AM -1:10 PM	Session A		
11:30 AIM -1:10 PIM	Track 1	Track 2	Track 3
1:10 PM – 2:00 PM	Lunch		
2:00 PM – 2:30 PM	Invited talks 4	Invited talks 5	Invited talks 6
2:30 PM – 4:10 PM		Session B	
2:30 PINI – 4:10 PINI	Track 4	Track 5	Track 6
4:10 PM – 5:10 PM	Plenary Talk(Conference Hall) by Dr. Ajoy Ghatak, IIT Delhi		
6:00 PM - 6:30 PM	DrSelvarajan A.,	Honouring to IISc, Bangalore & Dr. Ajoy (Conference Hall)	<b>y Ghatak</b> , IIT Delhi
6:30 PM – 7:30 PM	Cultural Programs(Conference Hall)		
7:30 PM Onwards		Banquet Dinner	

### **ICOE 2012**

### DAY 3

TIME	28-7-2012 (Saturday)		
Room number	PGSB 106	PGSB 107	PGSB 110
9:00 AM - 10:00 AM	Plenary Talks(Conference Hall)		
10:00 AM - 10:15 AM	Tea Break		
10:15 AM -10:45 AM	Invited talks 7	Invited talks 8	Invited talks 9
10:45 AM – 12:55 PM	Session C		
	Track 7	Track 8	Track 9
12:55 PM – 2:00 PM	Lunch		
2:00 PM - 2:30 PM	Invited talks 10	Invited talks 11	
2:30 PM - 4:10 PM	Session D		
	Track 10	Track 11	
4:30 PM – 5:30 PM	Valediction (Conference Hall)		

### **KEY NOTE SPEAKER**

### INTERNATIONAL CONFERENCE on OPTICAL ENGINEERING

### INVITED SPEAKERS



### Dr. Kumar N. Sivarajan CTO ,Thejas Networks

Kumar is responsible for setting the technology and product direction for Tejas Networks. Prior to Tejas Networks, Kumar was an Associate Professor in the Electrical Communication Engineering Department, at the Indian Institute of Science, Bangalore. Prior to that he has also worked with the IBM Thomas J. Watson Research Center, Yorktown Heights, New York.

Kumar is co-author of the textbook Optical Networks: A Practical Perspective' published in February 1998. He is a Fellow of the Indian National Academy of Engineering, an Associate of the Indian Academy of Sciences, and a recipient of the Swarnajayanti Fellowship from the Department of Science and Technology, and the 2004 Global Indus Technovator Award from the India Business Club at the Massachusetts Institute of Technology. He is also a recipient of the Institute of Electrical and Electronics Engineers, Inc Fortescue Fellowship and Institute of Electrical and Electronics Engineers, Inc.BakerPrizePaper Award.

Kumar holds a Bachelor's Degree in Technology in Electrical Engineering from the Indian Institute of Technology, Madras and a Doctorate from the California Institute of Technology.



### Dr. R. K. Shevgaonkar Director, IIT Delhi

Dr.Shevgoankar is the Director of Indian Institute of Technology, Delhi. He holds of Philosophy (Ph.D.) in Electrical Engineering from I. I. T., Bombay/ (Indian Institute of Astrophysics/Raman Research Institute, Bangalore) on Maximum Entropy Restoration of Astronomical Images in 1985 and Master of Technology (M.Tech) in Electrical Engineering from IIT, Kanpur with specialization in Electromagnetics and Optical fibres in 1977. He has obtained his Bachelor of Engineering (BE) in Electronics Engineering from Jiwaji University, Gwalior in 1975 with Gold Medal.

He has served at the various prestigious Institutions as Vice Chancellor of University of Pune (2010-2011), Visiting Professor, ISEP, Paris, ETH Zurich, Computer and Electronics Engineering Department, University of Nebraska, Lincoln, USA (on Sabbatical leave), Director (Finance and External Affairs), IIT Bombay. Professor has more than 150 papers published in International Journals and Conferences. His research interests includes Fibre Optic Communication, Photonics, Non-linear fibre optics, Antennas, Image Processing, Radio Astronomy.

Dr. Ajoy Ghatak IIT, Delhi

Ajoy Ghatak is an Indian physicist and author of physics textbooks. He is arguably the father of modern India's research and education programs in photonics & optics. He obtained his PhD from Cornell University in Sept., 1963 for dissertation titled "Non linear prompt neutron kinetics in multigroup diffusion theory".

Professor Ghatak has written over 170 research papers and more than 20 books. His undergraduate text on Optics has been translated to Chinese and Persian and his monograph on Inhomogeneous Optical Waveguides (coauthored with Professor Sodha) has been translated to Chinese and Russian. He was elected Fellow of the Optical Society of America"for distinguished service to optics education and for his contribution to the understanding of propagation characteristics of gradient index media, fibre and integrated optical devices".

### **ICOE 2012**



### Dr. Bishnu P. Pal IIT, Delhi

Prof. Bishnu P. Pal, Professor of Physics at the Indian Institute of Technology Delhi (since 1990), is a research and educator in the field of Fibre Optics and Optical Communication. Ph.D. (Physics) from I.I.T. Delhi in 1975. Pursued Post-School academic Degrees (1965-1975) as a National Science Talent Search Scholar of the National Council of Educational Research and Training (NCERT, India)

Prof. Pal has been deeply involved with the conception, launching, and running of the Interdisciplinary research and M.Tech. program on Optoelectronics and Optical Communication since 1980 at IIT Delhi and he has also recently completed a three-year term (2003-2006) as the Head of IIT Delhi's Computer Services Centre.



### Dr. Goto, Nobuo The University of Tokushima, Japan

He is the Professor, Institute of Technology and Science, The University of Tokushima, Japan. He is graduated from the Faculty of Engineering, Nagoya University in 1981. 3. Graduated from Department of Electrical and Electronics Engineering, Graduate School of Engineering, Nagoya

University, Master degree in 1984.He did his Ph.D.from Department of Electrical and Electronics Engineering, Graduate School of Engineering, Nagoya University, Japan. His field of research interest is Optical information processing.



### Dr. Rajappa Papanna Reddy Purdue University, USA

Prof. Rajappa Papanna Reddy. Prof Emeritus of Electrical engineering purdue university North central West ville. He did his Phd in Electrical engineering from the southern methodist university in Dallas in 1987.

His research area includes Light wave communication systems relating to the analysis of semiconductor LASER, Optical amplifiers and Direct and coherent detection schemes.



### Dr. Balagangadhar G Bathula Columbia University, NY.

Post Doctoral Research Scientist, Lightwave research laboratory at Columbia University. New York, NY 10027,

Bala received his M.Tech (Opto Electronics and Laser Technology) from International School of Photonics, Cochin University, India and PhD degree in Electrical & Communication Engineering, Indian Institute of Science, Bangalore in 2004 and 2008 respectively. His PhD dissertation, entitled QoS Aware Quorumcasting Over Optical Burst Switched Networks, was done under the supervision of Prof. Srinivas Talabattula.

Between Aug 2007 - May 2008 and Oct 2009 - May 2010, Bala was with University of Massachusetts, Dartmouthas a Visiting Scholar. In 2008-2009, he was a post-doc fellow at the Department of Electrical Engineering, University of Leeds, UK.





### INTERNATIONAL CONFERENCE on OPTICAL ENGINEERING



#### Dr. Sripriya Sundararajan Senior Si Process Engineer at One Chip Photonics Toronto, Canada Area - Research

She hold a Ph.D. in Electrical Engineering, during which she developed a nanoparticle enhanced photodiode and have three years of experience in the programmable logic (Altera) and graphics chip industry (AMD,formerly ATI). Her career goal is to move into a technically demanding strategic role in the optics, semiconductor or nanotechnology industry.



His Research interest are Photonic switching architectures, telecom networks, inter-working, signalling, transmission, protocols, network management, embedded systems

Over 21 years of post-doctoral research and teaching experience. Instrumental in formulating and setting up the Bharti School of Telecommunication.



Dr. Shiva Kumar McMaster University, Canada

Dr. Shiva Kumar is the professor in McMaster University, Canada. He holds M.S. (Indian Institute of Science, India), Ph.D.(Indian Institute of Science, India), Ph.D (Eng.) (Osaka University, Japan).

His areas of Interests are Fiber optic communication systems. Photonic devices, Modelling and simulation of optical communication systems, Solitons.



Dr. Balaji Srinivasan IIT, Madras

Balaji obtained his Ph.D. in 2000 from the University of New Mexico, USA. Prior to that, he obtained his M.S. in Electrical Engineering and B.E. in Electronics and Communication Engineering from the University of New Mexico and the Thyagaraj College of Engineering, Madurai respectively. Balaji's research interests span the development of active and passive optical components/sub-systems for sensing, material processing, and telecom applications including Fiber Bragg Gratings (FBGs) and FBG-based Sensors, Distributed Fiber Sensors, High Power Fiber Lasers and Amplifiers

### **Dr. Jagannath Nayak** Scientist 'F', RCI, Hyderabad

Jagannath Nayak is a Scientist 'F' at Research Centre Imarat, Hyderabad, India. He received his M. Sc (Engg) and PhD degrees from Indian Institute of Science, Bangalore, India in 1997 and 2004 respectively. His current interests are Fiber Optic and Integrated Optic sensors, Micro-opto-electro-mecahnical systems and their application to inertial navigation systems. He has contributed immensely to the development of Fiber optic Gyro. He is a distinguished faculty of Indian National Academy of Engineering. He received several awards. He is a member of IEEE Photonics society,



Dr. R.K .Sinha Delhi Technological University

Prof. R.K. Sinha, Professor of applied physics associated with electronics and communication engg. Department since Oct 18 2002 at Delhi Technology university. He did his Ph.d in Fibre optics and optical communications with elective in advance electronics IIT, Kharagpur 1984.

Prof. R. K. Sinha has been deeply involved in fabrications and experimental characterization of photonic crystal fibers, nano photonics, optical fiber communication systems and networks.

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### THE ORGANIZERS

### Visvesvaraya Technological University(VTU) and IEEE Photonics Society,BangaloreChapter

Visvesvaraya Technological University(VTU): VTU is one of the bigger Technological Universities in India, having 186 colleges affiliated to it with under graduate course in 28 disciplines and PG Programme in 71 disciplines. There are over 2305 departments recognized as research centres. The University has recently started MBA and M.Tech. Programme at Belgaum. The University has very successfully achieved the tremendous task of bringing various colleges affiliated earlier to different Universities, with different syllabi, different procedures and different traditions under one umbrella.



Dr.S.A.Kori Registrar,VTU

### Dr.Subrat Kar IIT, Delhi

In the last few years, Visvesvaraya Technological University has emerged as one of the best universities of the country by successfully contributing best professionals to the IT industry. VTU takes pride not only in the quality of students passing out every year but also in the commitment and activities that ensure the overall growth (both academic as well as personality development) of the student community. As a responsible body working for the betterment of society, Visvesvaraya Technological University feels that innovation and constant improvement depend on the quality of education in the country.



**Dr. H.Maheshappa** Vice Chancellor , VTU, Belgaum

### CHIEF PATRON

Prof. H. Maheshappa, BE (Mechanical), ME (Machine Design), PhD, FIE, FIV, FISME, FWAPS, MISTE is the Vice Chancellor, Visvesvaraya Technological University, Belgaum. He has earlier worked Principal, Cambridge Institute of Technology, Bangalore. He was the Member of Academic Senate, Visvesvaraya Technological University (VTU), Belgaum. He was also the Member of National Executive Council, Indian Society for Technical Education (ISTE), New Delhi. He was the Chairman, Board of Examiners, Mechanical Engineering and also Local Inspection Committee, VTU, Belgaum. He is the Charted Engineer and Fellow of the Institution of Engineers (India). Member, State Steering Committee, TEQIP, He is the Member of Council of National Institute of Technology's. He is having 29 years of experience

in Teaching and Research. He has published number of Research papers and won various Awards/Honors. He served in various responsible positions (academic / administrative) at University. He is also a Fellow / Member of many Professional Institutions / Societies including World Academy of Productivity Science, Canada. Professor H. Maheshappa is also the Member of Karnataka Jnana Ayoga and Karnataka Innovation Council, Government of Karnataka. He is responsible for introducing many reformation in the University including Digital Evaluation, employment for rural Engineering College students starting of Incubation Center in the University to encourage students to become entrepreneurs. He has widely traveled to the countries like Japan, Mauritius, France, Greece, Switzerland, Vietnam and Dubai.

Dr. S.A.Kori is the registrar of Visvesvaraya Technological University, Belgaum. He did M.Tech in Karnataka Regional Engineering College, Surathkal in 1986 and Ph. D., Indian Institute of Technology, Kharagpur in 2000.

His research areas are Casting and Solidification, Grain refinement of Aluminium and its Alloys, Development of Grain Refiners and Modifiers for Aluminium and its Alloys, Modification of Al-Si Alloys, Metal Matrix Composites (MMCs), In-situ Composites, Tribology and Metal-Ceramic Brazing.

### **CONTACT :**

Conference Email id : contact@icoe2012.org

### Dr. T.Srinivas

General Chair, ICOE-2012, Dept. of ECE, Indian Institute of Science, Bangalore. Email : tsrinivas@icoe2012.org

### Dr. Indumathi T.S.

General Co-Chair, ICOE-2012, Dept. of Telecomm. Engg, Dr. Ambedkar Institute of Technology, Bangalore. Email : indumathi\_ts@yahoo.co.in

### **VENUE:**

Visvesvaraya Technological University Campus, "Jnanasangama", Belgaum-590018, Karnataka, India.