



## Workshop on

# *Recent Advances in Microwave Engineering:*

*Devices, Technologies and Applications*

**January 20-21, 2012**



*Organized by*

**Department of Electronics Engineering  
Institute of Technology  
Banaras Hindu University  
Varanasi**

### **Scope of the Workshop**

The field of Microwave Engineering has been going through a period of resurgence over the last few decades. In view of the emergence of new devices along with the advancement in the MMICs, MEMS, PBGs, metamaterials, etc., there are now newer civilian and military applications as well as renewed interest in different areas with particular reference to telecommunications. The frequency and power limits of these devices and systems have reached to Terahertz and Gigawatt ranges. In fact, the availability of advanced, fully three-dimensional simulation codes, advanced materials, precision fabrication and processing technology has added new dimensions to the performance of the microwave devices and systems.

The purpose of the workshop is to bring together under its canopy the engineers, scientists and researchers from the academic institutions, national laboratories, research centers and industries on a common platform to interact with one another and deliberate on the recent advancement in microwave engineering devices, technologies and applications

The two-day workshop will include invited talks on emerging areas of Microwave Engineering by eminent experts from various academic, research organizations and industries. The following broad topics of microwave engineering devices, technologies and applications will be covered:

- *Microwave Communications*
- *Microwave Remote Sensing*
- *Antennas*
- *MMIC, MEMS, PBG structures and Metamaterials*
- *Solid State and Electron Beam Devices*
- *Biological Effects and Medical Applications*
- *Circuits and Measurements*
- *Microwave and Millimeter wave Systems*
- *Microwave Applications*

While deliberating on the above topics, experts and delegates from the academic institutions, research centers and industries will join hands with one another and identify the specific and critical areas of practical relevance and of importance to the Indian and global scenario.

### **Correspondences**

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*Organizing Secretary, Microwave Workshop-2012*  
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Varanasi-221 005, India.  
**email:** pkjain.ece@itbhu.ac.in  
**Fax:** 0542-2366758

### **Registration**

There will be no workshop registration fee for all the participants, however no TA/DA will be provided to participants including invited expert speakers.

### **Accommodation**

Varanasi is cold (around 6-12C) in January and one would need woolen clothing. Accommodation for the participants can be arranged in university faculty exchange building, university guest houses or in hotels in the city, as per request and availability.

### **Patron:**

Professor Lalji Singh, Vice-Chancellor, BHU

### **Organizing Committee:**

Professor K. P. Singh	<i>Chairman</i>
Professor S. K. Balasubramanian	<i>Member</i>
Professor S. P. Singh	<i>Co-Chairman</i>
Professor P. K. Jain	<i>Organizing Secretary</i>
Professor R. R. Das	<i>Member</i>
Professor V. N. Mishra	<i>Member</i>
Dr. R. Dwivedi	<i>Member</i>
Dr. R. U. Khan	<i>Member</i>
Dr. M. K. Meshram	<i>Member</i>
Sri N. S. Rajput	<i>Member</i>
Sri M. K. Singh	<i>Member</i>
Dr. Amit Kumar Singh	<i>Member</i>
Sri Amritanshu Pandey	<i>Member</i>
Sri M. Thottappan	<i>Member</i>
Dr. A. K. Sharma	<i>Member</i>
Mr. T. K. Singh	<i>Member</i>
Dr. V. K. Singh	<i>Member</i>

## Workshop

### *Recent Advances in Microwave Engineering:*

### *Devices, Technologies and Applications*

**January 20- 21, 2012**

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#### REGISTRATION FORM

Name .....

Designation .....

Affiliation .....

Address for Correspondence .....

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Email: .....

Phone No: .....

Fax No: .....

Accommodation required:                      Yes / No

Type: Hotel / Faculty Building

Date

Signature of the participant



## Workshop

on

### *Recent Advances in Microwave Engineering : Devices, Technologies and Applications*

January 20-21, 2012

Department of Electronics Engineering  
Institute of Technology, Banaras Hindu University



### **WORKSHOP TECHNICAL PROGRAM**

**Venue:** Committee Hall, IT Directorate, BHU

**20<sup>th</sup> January 2012**

**10.00 – 11.10 Inaugural Session**

**Keynote Address:** Recent Advances in Microwave Engineering: Devices, Technologies and Applications - *Lalit Kumar* (Director, MTRDC, DRDO, Bangalore)

**11.10 – 11.30 TEA**

**11.30 – 13.15**

#### **Session I: R&D— Advances and Activities**

- 1 Networking Approach-Case Studies for Microwave Tubes - *S. N. Joshi* (CEERI, CSIR, Pilani)
- 2 Advances in application of microwaves in EW - *K. B. Venkatraman* (DARE, DRDO, Bangalore)
- 3 Active Electronically Scanned Arrays (AESAs) - Indian Perspective – *A.K. Singh* (LRDE, DRDO, Bangalore)
- 4 DST Technology System Development Programme (TSDP) Activities - *Rajiv Sharma* (DST, New Delhi)

**13.15 – 14.00 LUNCH**

**14.00 – 16.00**

#### **Session II: Microwave Remote Sensing -I**

- 1 A Journey From ELF to Microwaves and Beyond to Understand Earth System of Systems - *Ramesh P. Singh* (Chapman University, Orange, US)
- 2 Passive Microwave Remote Sensing - *Ramashraya Singh* (Sharada University, Noida)
- 3 Passive Microwave Radiometry for Agricultural Applications - *R. P. Singh* (SAC, ISRO, Ahmedabad)
- 4 Role of Satellite Images for Earth's Surface Monitoring – *Dharmendra Singh* (IIT, Roorkee)
- 5 Remote Sensing – *J.S. Parihar* (SAC, Ahmedabad)

6 To be announced - *A K Varma* (AOSG)

**16.00 – 16.15**                      **TEA**

**16.15 – 18.00**

**Session III: High Power Microwaves :**

- 1 Strategic applications of High Power Microwaves – *S.U.M. Reddy* (MTRDC, DRDO, Bangalore)
- 2 High Power Gyrotron and its application to fusion – *B. K. Shukla* (IPR, Ahmedabad)
- 3 EMP generation mechanism and its destructive Effect on C<sub>3</sub>I network - *K. K. Jha* (DEAL, DRDO, Dehradun)
- 4 Gyrotrons for fusion energy and other ism applications: a retrospective and perspective proposition – *M. V. Kartikeyan* (IIT, Roorkee)

**20.30**                                      **DINNER**

**21<sup>st</sup> January 2012**

**09.00 – 11.15**

**Session IV: Microwave Tubes :**

- 1 Space-Charge-Wave and Cyclotron-Wave Amplifiers: Review of Some Basic Concepts – *B.N. Basu* (Sir JC Bose School of Engineering, Hoogly)
- 2 High Efficiency High Linearity Travelling Wave Tubes for Communications - *Vishnu Srivastava*, (CEERI, CSIR, Pilani)
- 3 Klystron Development Programme at CSIR-CEERI, Pilani - *L. M. Joshi* (CEERI, CSIR, Pilani)
- 4 Magnetrons and their new and ambitious applications - *V. V. P. Singh* (CEERI, CSIR, Pilani)
- 5 Development of MPMs and MPM based tx. for EW and communication applications – *M. Santra* (MTRDC, DRDO, Bangalore)
- 6 Design and development of magnetron based high energy linac system – *T. Tiwari* (SAMEER, Mumbai)
- 7 Traveling-Wave Tube for on board satellite application – *S. Ghosh* (CEERI, CSIR, Pilani)

**11.15 – 11.30**                              **TEA**

**11.30 – 13.15**

**Session V: Communication and Antennas :**

- 1 Recent Advances in Communication Technology in Indian Context - *P. Dalela* (CDOT, New Delhi)

- 2 Microwave engineering & instrumentation in fusion science and technology –**S. K. Pathak (IPR, Ahmedabad)**
- 3 Design and development of UWB antennas for modern communication systems - **D. Bhatnagar (Rajsthan University, Jaipur)**
- 4 Active RCS Reduction in Phased Array – **Hema Singh (NAL, CSIR, Bangalore)**
- 5 Microwave Antennas – **Neelam Srivastava (IET, Lucknow)**

**13.15 – 14.00                      LUNCH**

**14.00 – 16.00**

**Session VI: *Microwave Remote Sensing-II***

- 1 Retrieval of Soil Moisture by Fusion of Microwave and Optical Data – **Rishi Prakash (Graphic Era University, Dehradun)**
- 2 Microwave Remote Sensing Applications in Target Detection – **K. C. Tiwari (Bharati Vidyapeeth College of Engg, New Delhi)**
- 3 Analysis of fused image of optical and radar images on Land cover classification – **Harish Kumar (Samsung, Noida)**
- 4 Airborne Altimetric LiDAR: Principle, Data Collection, Processing and Applications – **Rashi Agarwal (CSJM Univ, Kanpur)**
- 5 RF Radiation: Cause and Effect – **O. P. Singh (Amity University, Lucknow)**
- 6 **Workshop Concluding Remarks**

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