

# engmednews

NEWSLETTER OF BIOMEDICAL ENGINEERING SOCIETY OF INDIA

## From the Editor

*Bheemsain Rao*



*Greetings BMESI community:*

*This is my first column as editor of this newsletter and my first issue. I feel deeply honored to be entrusted with this newsletter. To begin with, I would like take bit of a space to thank my predecessors Prof. A. G. Ramakrishnan and Prof. C. P. Gadgil who had been pioneering this effort with highest standards of professional competence. I look forward to having their guidance and as well support from one and all the BMESI community.*

*As a new editor of newsletter, I would like to issue invitation to all the readers to talk / write or shoot an email to me with suggestions or to share their activities in and around them covering anything from science & technology to friendly jokes.*

*Hope this issue's coverage on International Conferences and Workshops and Series of Opto-electronic related programs helps to get your wheel turning.*

*ICSE – 10 was a sincere effort in bringing academia, researchers and industry together to create forum for free exchange of ideas, discussion and debate on the theme to discuss future trends of science and engineering.*

*To promote mutual beneficial networking, help reorganize our own training need and SWOT analysis, newer learning grounds, effective industry inputs, let us join hands together and try to make this newsletter more beneficial in the coming years.*

*Wishing You All Prosperity, Peace and Happiness.*

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## From Vice President's Desk

*M Mukunda Rao*

The calendar year 2010 started off with flying colors with many events related to Biomedical Engineering, both national & international being flagged off in many academic institutions across the country. One such noteworthy program was a Short Term Training Program on "Biomedical Instrumentation" organized by the dept. of Electrical Engg. of IIT Madras for one week (15-20th March'10). The undersigned was a resource person at this event which went off very well under the co-ordination of Prof. V. Jagadeeshkumar, HoD of Electrical Engg. at IIT Madras. This was followed by a two-day 1st Indo-European Skin Perfusion Research Symposium where many European delegated gave lectures. I am happy that Prof. Bheemsainrao, HoD of Medical Electronics dept. of MSRIT has taken over as the Editor of the BMESI Newsletter. With his rich experience both in Academia & Industry; I am sure he will do a good job of bringing the news & events related to bio-medical engineering to the members of BMESI. I wish him all success in this endeavor and urge the BMESI community to strengthen his hands by reporting to him, preferably in advance, any events related to BMESI organized by them.

## Conferences & Workshops in the recent past

### International Conference on Convergence of Science and Engineering in education and research- a global perspective in the new millennium- ICSE 2010

ICSE 2010, organized by Dept. of Medical Electronics, Dayananda Sagar College of Engineering, Bangalore was inaugurated on 21st April 2010 by Dr. P Balaram, Director, IISc, Bangalore; who was the chief guest to the function. Other eminent dignitaries on dais were, Dr. V. K. Aatre, Professor Emeritus, IISc., Distinguished Scientist & Former Scientific Advisor to Prime Minister of India & Dr. R. Nagaraja, Managing Director, PRDC, Bangalore.

The conference consisted of 5 main sessions. The technical sessions were on Medical Imaging, Biomedical Instrumentation, Biomedical Signal Processing, Nanotechnology in Medicine and Artificial Intelligence and Poster presentation.

First day's focus was on Medical Imaging with key note address by Dr. K N Bhanuprakash, Research Scientist at Biomedical Imaging Lab, Singapore Bioimaging Consortium, A-STAR, Singapore. The key note address was on **“Electronic Brain Atlas: Applications to Medical Education and Clinical Practices”**. Dr. N Sriram, Professor and HOD, Dept. of Biomedical Engg., SSN college of Engg., Kalvakkam, Chennai delivered a technical talk on **“Recent advances in medical imaging techniques for clinical applications- a quantitative analysis**. The paper presentation this session was chaired by Dr. N Sriraam. Papers presented were on: “Laser Reflectance Microscopy 2 D tissue Imaging System”, “Vitiligo: developing software as prognostic tool to assess the quality and quantity of repigmentation”, and “A novel algorithm for digital x-ray image Construction from low cost front panel Board”.

On 22<sup>nd</sup> Poster presentation was on “Electrooculogram signal processing” by Sandra D'Souza, MIT, Manipal.



Dr. K. N. Bhanuprakash,  
Singapore



Medical Electronics Faculty  
(Organizers) with Dignitaries

The technical session on Biomedical Instrumentation session started with the keynote speaker, Dr. M. Mukunda Rao, from SRM Institute of Technology, Chennai. The speaker delivered technical talk on **“Respiratory Sinus Arrhythmia Studies Using Photoplethysmography (PPG)”**. The second invited speaker was, Dr. A. S. Aravind, Professor & Head, Dept of Biomedical Engg. Institute of Aerospace Medicine, IAF Airport Road, Vimanapura Post Bangalore. He enlightened the audience about the **“Challenges in Biomedical Equipment Design for Applications in Demanding Environments of Aviation and Space”**.

Papers presented were on: “Development of an electronic pseudophysician” and “Electromagnetic surgical Device”.

A colorful cultural program was held which was followed by grand conference dinner.

The morning session on 23<sup>rd</sup> of April, 2010, was on biomedical signal processing. The keynote speaker was, Dr. Bheemsain Rao, professor & HOD, Medical Electronics, MSRIT, Bangalore. The technical talk was on **“Medical laser technology; advances, applications for affordable healthcare.”** The paper presentation session was chaired by Dr. Bheemsain Rao. Papers presented were on: “Adaptive Neuro-Fuzzy Inference System for Classification of ECG Signals using Discrete Wavelet Transform” and ‘Simulation, Processing & Analysis of Electroretinogram (ERG) signal using Virtual instrumentation’. Afternoon session on Nanotechnology in Medicine and Artificial Organs started with keynote address by Dr. Niranjan U. C., PhD, Adjunct Professor, MIT, Director Research and Training, MDN LABS, Manipal. Topic was on **“Medical Technology”**.

The chair person for the paper presentation was Dr. Niranjan U. C. Paper presented was on: “Myoelectric controlled partial hand prosthesis”.

Conference has benefited the participants and served the purpose of spreading the research ambience across the globe and foster the growth of India as a developed nation.

## Intercollegiate Student Poster Presentation Contest held at M. S. Ramaiah Institute of Technology



Students explaining their project

The department of Medical Electronics under student organization “MEDIPULSE” conducted Project Poster Presentation competition for the final year (VTU) students on 17.05.10 at MSRIT campus.

This event was arranged with the intention of providing a platform to exhibit the innovative ideas from the students in the area of biomedical applications, discuss the idea and its implementation and share their experiences & difficulties encountered during their project development. In total there were 17 project groups that participated. Total number of student participants was fifty one.

The projects were on the areas of biomedical imaging & Bio instrumentation. Dr. Jaisri Goturu, HOD, Dept of Physiology, MSRMC and Dr. S. Sethuselvi, HOD, Dept of Electronics, M.S.R.I.T were invited as panel of judges to assess the projects presented by the students.

Six groups were selected for the 2<sup>nd</sup> level of selection.

Based on presentation of their projects, 3 best projects were selected.

The First place was won by: Chitra K. R., Sangeetha P.K & Sahana S Adiga, M.S.R.I.T, for the project on “**Microcontroller Based Vibrotactile**”, the Second place was won by: Ajay S, Shashank K. Datta, Vinay M. S of S.K.I.T for the project on “**Optical Interface to control mouse for paralytic patients**” and the Third place was won by : Dhriti Sunder Mishra, R. G. Ajay Prakash, Anish Deepakanj, Sukanya Sharma, M.S.R.I.T for the project on “**Wireless patient monitoring systems**”.

### One day “International Workshop on Optoelectronic Sensors and Its Applications”

This International workshop was convened and organized by Mrs. S. Chandravadhana, HOD, ECE Department, in collaboration with the department of Biomedical Engineering at Shree Motilal Kanhaiyalal Fomra Institute of Technology (SMKFIT), Kelambakkam, Chennai on 25<sup>th</sup> March 2010.

The audiences were enlightened by eminent personalities from reputed institutions such as Technical University of Aachen, Germany, IIT Madras, Anna University and IISc, Bangalore. The Inaugural address was given by Dr. G. Ravindran, Director, Centre for Medical Electronics, Anna University, Chennai. He is also the President of Bio Medical Society of India (BMESI). This was followed by a talk on “Application of Photoplethysmography in Signal Processing” by Dr. – Ing. Vladimir Blazek, Professor, Technical University of Aachen, Germany.

After this session Dr. Jagdish Kumar, Prof. and Head, IIT Madras gave a brief presentation on “Pulse Oxymetry”. Also Dr. S. Chandrasekhar, Professor, IISc Bangalore, gave a presentation on “Optical Coherence Tomography”. After each session students and faculty were given opportunities to raise their doubts on various topics. The students participated very actively in the interaction session.

Dr. M. Mukunda Rao, Vice President, BMESI and also Professor, SMKFIT, was the chairperson for this International Workshop. He briefed the audience about the recent advances in “Bio Medical Engineering”.

## PAST Events

- **1<sup>st</sup> Indo-European Skin Perfusion Research Symposium was held at IIT Madras, Chennai during 18<sup>th</sup> to 20<sup>th</sup> March 2010**
  - This symposium focused on Non-invasive opto-electronic sensor concepts for detection of rhythmical phenomena in dermal skin perfusion, Photoplethysmography Imaging (PPGI) for functional skin microcirculation mapping, among other PPGI related issues.
  - Experts from University of Aachen, Germany, University of Picarde, France, Bern University, Switzerland spoke during this symposium.
- **UGC Sponsored National Workshop on “Trends and Issues in Signal Processing Research” was held at Annamalai University during 20<sup>th</sup> to 21<sup>st</sup> March 2010.** This was organized by Dept. of Electrical Engg. and Faculty of Engineering and Technology.

- **A Short Term Training Program on “Biomedical Instrumentation” was organized by Dept. of Electrical Engg., IIT Madras during 15<sup>th</sup> March to 20<sup>th</sup> March 2010.**
  - Main focus of this training program was Optical sensors for biomedical instrumentation, Ultrasonic applications in biomedical instrumentation, Acquisition and conditioning of biomedical signals and Embedded and implantation devices.
- Two-day **“Theme meeting on Medical Instrumentation”** sponsored by Atomic Energy (DAE), Board of Research in Nuclear Sciences (BRNS) BARC, Mumbai was organized during May 28<sup>th</sup> & 29<sup>th</sup> 2010 at Father Muller Medical College, Mangalore. A detailed report of this meeting will follow in the next issue of this news letter

**FORTHCOMING EVENTS**

- National Workshop on Infrared Thermography and its Application, NWIT-2010 is being organized by Institute for Plasma Research, during June 28 to 30, 2010. The last date for registration is 15<sup>th</sup> June 2010. Further information can be obtained from this website:  
<http://www.nwit-2010.irs.org.in/index.html>
- Two-day strategic conference on Novel Drug Delivery Systems, NDDS 2010 is being organized by CPhI Conferences during 19<sup>th</sup> & 20<sup>th</sup> August 2010. For latest information visit:  
[http://www.ndds-india.com/?utm\\_campaign=EVENTCALENDAR&utm\\_medium=EVENTLISTING&utm\\_source=GOINGTOMEETCOM](http://www.ndds-india.com/?utm_campaign=EVENTCALENDAR&utm_medium=EVENTLISTING&utm_source=GOINGTOMEETCOM)
- **Hospital Infrastructure India 2010**, a premier international exhibition on hospital infrastructure, supplies, planning and healthcare development will take place between 7<sup>th</sup> – 9<sup>th</sup> December 2010 at Bombay Exhibition Centre, Mumbai, India. Additional information can be obtained from:  
<http://www.hospitalinfra-india.com/>
- International Conference on Biomedical Engineering and Assistive Technologies (BEATS-2010) is being organized by Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, during 17<sup>th</sup> to 19<sup>th</sup> December 2010. Further information can be obtained from this website:  
<http://www.nitj.ac.in/index.php/component/content/article/49-newsflash/213-icbbeats-2010>

**Send your articles to**

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