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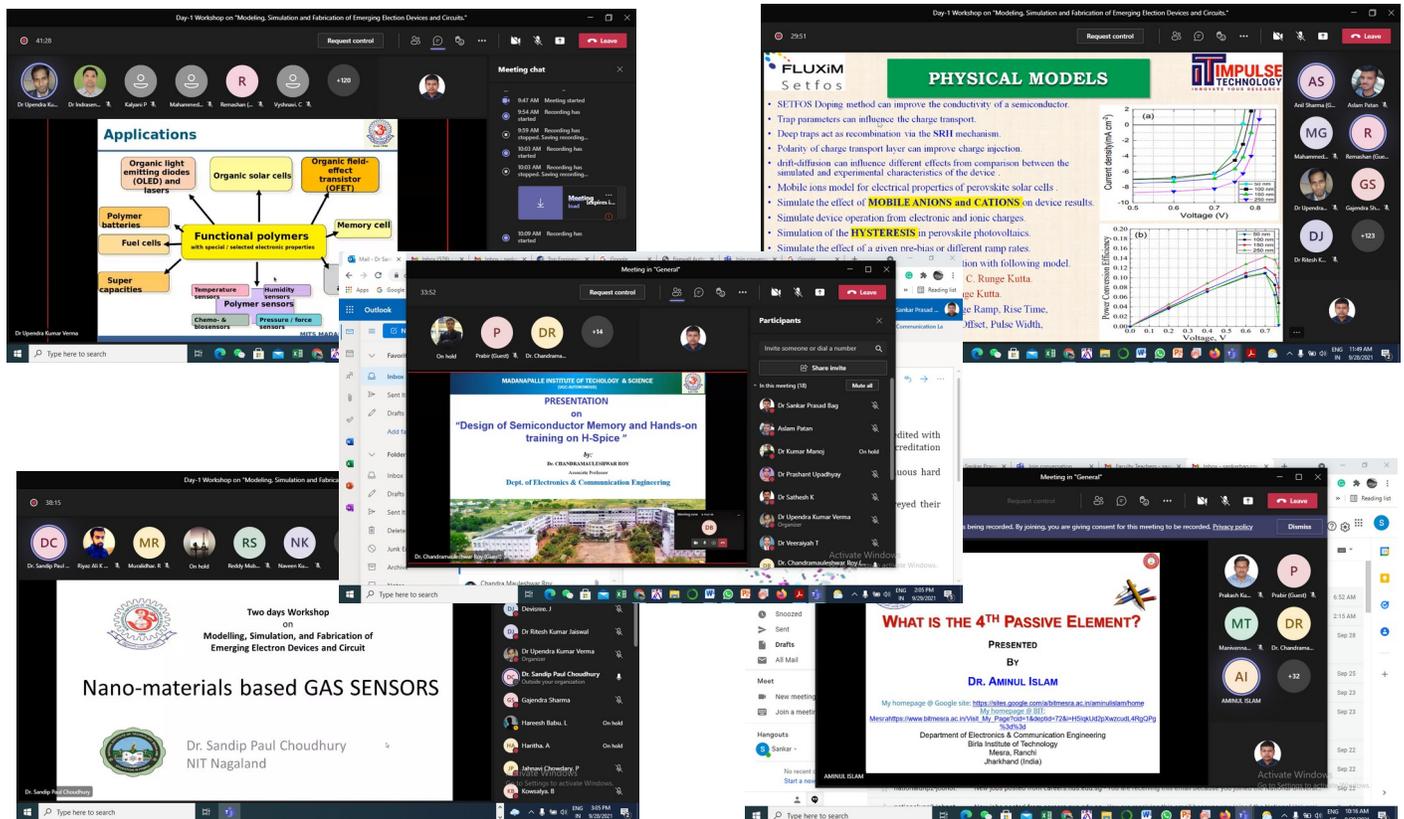
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Department of Electronics & Communication Engineering

Report on Two Days Workshop on

Modeling, Simulation, and Fabrication of Emerging Electron Devices and Circuits

(28th and 29th September 2021)



Submitted by: Dr. Upendra Kumar Verma Asst. Prof, Dept. of ECE, Madanapalle Institute of technology and Science Chittoor, Andhra Pradesh, India.

The Department of Electronics and Communication Engineering, Madanapalle Institute of Technology and Science Madanapalle, Andhra Pradesh, India in association with IEEE MITS has organized two days (28th and 29th September 2021) workshop on ‘Modeling, Simulation, and Fabrication of Emerging Electron Devices and Circuits’. In the workshop, more than 150 participants from MITS and other National & International institutes were participated to make the event successful. The workshop is mainly focused

towards the enlightenment on the current trend in electron devices and circuits like Organic Electronics, Quantum Dots, Sensors, Memories, Simulation Tools, Fabrication Techniques etc. and also provide hands-on-training on various modeling and simulation tools by experts from reputed industries (**FLUXiM AG**) and academicians (**NIT Nagaland, BIT Mesra, & MITS Madanapalle**).

A brief summary of the workshop event by event is as follows:

The event was started with the welcome speech from the organizing committee members (Dr. Sankar Prasad Bag, Assistant Professor, Dept. of ECE, MITS Madanapalle (Co-coordinator), Dr. Chanramauleswar Roy Associate Professor, Dept. of ECE, MITS Madanapalle (Co-coordinator), Dr. Upendra Kumar Verma Asst. Prof. (Coordinator), Dr. S. Rajasekaran, HoD, Dept. of ECE, MITS, Madanapalle (Convener), and Prof. (Dr.) C. Yuvaraj, Principal of MITS, Madanapalle (chairperson) at 10:00 am onwards.

At 10:20 am, the first technical session on '*Basics of Organic Electronics*' was delivered by **Dr. Upendra Kumar Verma**. He received his PhD and M. Tech degree from IIT Roorkee, India. He discussed the basics of organic semiconducting materials, working principles of organic semiconducting devices, the novel fabrication techniques, their applications, and challenges associated with Organic Electronics.

The hands-on-training on the simulating software '*SETFOS*' from FLUXiM AG for designing and simulating organic semiconducting devices was started at 11:30 am by industry expert, **Er. Anil Kumar Sharma Managing Director, Impulse Technology**. Currently, he is working on various EDA tool called Crosslight S/W, FLUXiM, Exabyte.io. He worked in industries like Integrated Microsystem on Silvaco, Crosslight, QuantumWise Software Technical Specialist. During the training, he discussed the features of the tools that are essential for designing of the organic devices by considering various common devices like organic solar cell, organic light emitting device, and quantum dot based device as example.

In the evening session of Day-1, **Dr. Sandip Paul Choudhury Assistant Professor, NIT Nagaland** was enlighten the audience by '*Basics of Gas Sensors*' their principle of operation, novel low-cost and costumed setup building for fabrication of gas sensors, and also discussed the essential characterization to analyze the performance of the gas sensors. Dr. Choudhury has completed his PhD in 2016 from NIT Meghalaya in Physics and Post-Doc from Shandong University, China.

Day-2 of the workshop was started with welcoming of all the participants. Morning session was handled by **Dr. Aminul Islam Associate Professor, Dept. of ECE, BIT Mesra**, Senior Member of IEEE, and corporate member of Institute of Engineers (India). He gave the insights on the '*Memristor based memories*'. Current advancement in the field of memories, advantages of memristor memories, and also discussed the design & performance issues related realization of such technology in the memories.

Finally, the evening session the last one of the workshop was delivered by **Dr. Chandramauleswar Roy**. Dr. Roy received his M.Tech and Ph.D from MANIT Bhopal, and BIT Mesra, in the Dept. of ECE with specialization of VLSI & Embedded System Design in 2012 and 2019, respectively. He provided a '*Hands-on-training on H-spice*' by considering memory cell as example. He discussed all the aspects of simulating the memory cell from scratch to advanced level. He analyzed the various parameters of memories for the taken example, its Layout, Cell Area etc.

Thus, two Days workshop on '*Modeling, Simulation, and Fabrication of Emerging Electron Devices and Circuits*' was completed with a thanking speech from the organizing committee members to the participants, experts of the sessions for their contribution and interest throughout the program.