

Technical Program

Tuesday, December 15, 2009

08:30 - 9:30	Registration			
09:30 - 10:30	Inauguration - (Venue: Ansari Auditorium)			
	Key note address			
10:30 - 11:30	Prof. Umesh Mishra, UCSB	The two dominant semiconductors as partners in the future:- Gallium Nitride and Silicon		
11:30 - 12:00	HIGH TEA			
12:00	Plenary Talks (HALL 1)	Stuart S.P. Parkin, IBM	The Spin on Electronics!	
12:45		Sanjay Krishna, University of New Mexico	Infrared Focal Plane Arrays Using Dots in a Well and Strain Layer Superlattice Heterostructures	
13:30 - 14:15	LUNCH			
Time	HALL 1	HALL 2	HALL 3	HALL 4
	<i>Emerging Technologies: I</i>	<i>III-Nitrides: I</i>	<i>Displays and solid state lighting: I</i>	<i>Infrared: I</i>
14:15	M Willander Wires, tubes and ribbons: A review	S Rajan New Approaches for III-Nitride Electronics	P Dutta Smart Lighting Dual Usage Systems for Illumination and Ubiquitous Communication Networks	A Rogalski Infrared detectors for the future
14:45	K Murali Quantum effects in nanoscale devices	N Dasgupta Some Challenges in the Fabrication of GaN-based Devices	M Hack Phosphorescent OLEDs: Status and Opportunities for Solid State Lighting	P O Holtz Tunability in the Detection Wavelength of a Quantum Dots-in-a-Well Infrared Photodetector
15:15	D Simon Future Challenges and Diversifications for Nanoelectronics by the End of the Roadmap and Beyond	S Arulkumar AlGaIn/GaN HEMTs and MIS-HEMTs on High-Resistivity Silicon Substrate	M Jun Progress in Liquid Crystal Display Technology	M M Hayat Modeling Passive-Quenching in Infrared Single Photon Avalanche Diodes
15:45 - 16:00	TEA - COFFEE			
16:00 - 16:45	Plenary Talk (HALL 1)	L. Pavesi, University of Trentovia	NanoSilicon Photonics	
Time	HALL 1	HALL 2	HALL 3	HALL 4
	<i>Emerging Technologies: II</i>	<i>OPTO-I</i>	<i>Photovoltaics: I</i>	<i>Silicon CMOS: I</i>
16:45	D Huffaker Growth and Fundamental Properties of Semiconductor Nanostructures	P Dawson Optical Properties of Nitride Quantum Well Structures	S Sivannathan Single Crystal II-VI on Silicon: An Alternative Solar Cell Design for Concentrated Photovoltaics	V Narayanan High-κ/Metal Gate Science and Technology A Renewed Pathway to CMOS scaling
17:15	R E Pino Technological Challenges in the Research and Development of Nanoscale Emerging Computing Architecture	L Fu Quantum Dot Optoelectronic Devices	S Karmalkar A Power Law J-V Equation for Modeling and Parameter Extraction of a Solar Cell	V Ramgopal Rao Ultra Low Power CMOS Device Design & Optimization for Sub 0.5V Supply Voltage Applications
17:45	E Guziewicz ZnO for cross-bar memories	A Suchocki High pressure luminescence studies of selected II-VI semiconductors and semiconductor quantum structures	F Dross Opportunities in low-dimensional Si nanowires for PV applications	H J Osten Introducing Crystalline Rare-Earth Oxides into Si-based Electronics
18:30 - 19:15	Plenary Talk (HALL 1)	Shigeo Mikoshiba, The University of Electro-Communications, Tokyo	LED backlights for LC displays	
19:30	DINNER			

HALL 1 <i>Ansari Auditorium</i>	HALL 2 <i>CIT Auditorium</i>	HALL 3 <i>Dayar-i-Mir Taki Mir (Ground Floor)</i>	HALL 4 <i>Dayar-i-Mir Taki Mir (First Floor)</i>
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Wednesday, December 16, 2009

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09:00	Plenary Talks (HALL 1)	N Narendran, RPI	A Lighting Revolution: Moving Away from Edison's Lamp Toward LED Illumination		
09:45		Colin Humphereys, University of Cambridge	Why are GaN LEDs so bright? The key role of Atom Probe Tomography and Electron Microscopy in studying Localisation Effects in InGaN/GaN quantum wells		
10:30 - 11:00	TEA - COFFEE				
Time	HALL 1	HALL 2	HALL 3	HALL 4	HALL 5
	<i>Emerging Tech.III</i>	<i>III-Nitrides:II</i>	<i>Displays and solid state lighting:II</i>	<i>Infrared:II</i>	
11:00	S K Ray Properties of Self-assembled Ge / Si (001) Quantum Dots Grown by Molecular Beam Epitaxy	R Muralidharan Some Issue in the design and fabrication of power HEMT devices	V Chigrinov Liquid Crystal Photo Alignment	J M Dell Micro-electromechanical Systems Integrated With HgCdTe: Hyperspectral IR Sensing From Defence to Agriculture	
11:30	H R Khan Magnetic Nanocomposites	A S Usikov HVPE Grown III-N Structures for device applications	T N Ruckmongathan Recent Developments in Driving Matrix LCDs	S K Noh Dual-Band Photoresponse in n-B-n InAs/GaSb Superlattice Detector	
12:00	S Dutta Zinc Tin Oxide Thin Film Transistor as Chemical and Bio-sensors	P I Cohen Ion Assisted Growth of III-nitrides by MBE	H K Dwivedi Present Status and R & D Trends in Plasma Displays	V Dhar Range formulation for LWIR & MWIR thermal imagers incorporating environmental effects	
12:30	R Nahar Circuit Modeling and Performance Analysis of Carbon Nanotube Interconnects	A Bhattacharya MOVPE growth and characterization of non-polar group III nitride semiconductors	B. S Satyanarayana Room temperature grown nanocarbons for field emission displays and lighting	R K Sharma Indigenous HgCdTe LPE Material development for IR Detector Applications	
12:45	R Garg Fitting the strain dependence of piezoelectric coefficients for InAs/GaAs nanostructures.				
13:00 - 14:00	LUNCH				
14:00	Plenary Talk (HALL 1)	K. Subramanian, GE Global Research Center	Redefining MEMS – Breakthrough system applications and key challenges in commercialization		
Time	HALL 1	HALL 2	HALL 3	HALL 4	HALL 5
	<i>Emerging Tech - IV</i>	<i>Adv Mat Growth and Charact:I</i>	<i>MEMS-I</i>	<i>Photovoltaics:II</i>	<i>Infrared:III</i>
14:50	S Selberherr Carbon Based Electronics:A Computational Study	L Braescu Advances in Computational Modeling of Crystals Grown by the Dewetted Bridgman Process	S Bhattacharya Demystifying Optical MEMS	S S K Iyer Improving efficiency and lifetime in organic solar cells	S Chakrabarti High Temperature Operating Nano-scale In(Ga)As/GaAs Quantum Dot Based Infrared Photodetectors
15:20	N H Tai Syntheses of Carbon Nanotube Forest and Array and Their Application in Flexible Field Emission Device	N B Singh Substrate for High Temperature and High Power Devices	S Chandra Planar Microstructures in Surface Micromachining Using RF Sputtered PSG and Silicon Nitride Films	Edward T Yu Plasmonic and nanoparticle scattering effects in high-efficiency photovoltaic devices	D N Talwar Novel type II strained layer superlattices for long wavelength infrared detectors
15:50	S Prasad Application of Artificial Neural Networks and the Genetic Algorithm to Semiconductor Device Modelling - A Review	S M Shivaprasad Superstructural phases in heteroepitaxial growth	Prem Pal Fabrication Methods Based on Wet Bulk Micromachining for the Realization of Advanced MEMS Structures	M Godlewski Zinc oxide by atomic layer deposition for photovoltaic applications	R Saxena Design of Trench Gate Power MOSFET for RF and Switching Applications
16:05			S K Singh Multiferroic BiFeO ₃ Thin Films for MEMS based devices		Rishal Singh A Novel Vertical Photoconductor Device Structure For Two Dimensional HgCdTe Infrared LWIR Hybrid Focal Plane Arrays
16:20 - 16:35	TEA - COFFEE				
16:35	Poster Session - I				
	Poster number : 1 - 120				
18:30	Plenary Talk (HALL 1)	V S Arunachalam, Former SA to RM	Global Energy Challenges		
19:30	BANQUET DINNER - at Hotel Eros Intercontinental, Nehru Place				

HALL 1 <i>Ansari Auditorium</i>	HALL 2 <i>CIT Auditorium</i>	HALL 3 <i>Dayar-i-Mir Taki Mir (Ground Floor)</i>	HALL 4 <i>Dayar-i-Mir Taki Mir (First Floor)</i>	Hall 5 <i>Conference Room Nehru Guest House</i>
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Thursday, December 17, 2009				
09:00	Plenary Talks (HALL 1)	A. Sood, IISc	Probing Graphene Field Effect Transistors	
09:45		S. Mahajan, Arizona State University	Materials Challenges in Group III Nitrides	
10:30 - 11:00	TEA - COFFEE			
Time	HALL 1	HALL 2	HALL 3	HALL 4
	<i>Emerging Technologies:V</i>	<i>III-Nitrides: III</i>	<i>Display and Solid State Lighting:III</i>	<i>Silicon CMOS:II</i>
11:00	B N Dev Diffusion in Nanoscale Doped Semiconductors	M Moram X-ray characterisation of nonpolar and semipolar III-nitrides	Y S Tyan OLED Lighting R&D at Eastman Kodak Company	G Reibold Understanding of the Key Generic Process Impacts on Reliability and Performances of CMOS high-K/Metal Gate Stacks
11:30	A S Vengurlekar Physics of nanostructure devices based on surface plasmon polaritons	S Raghavan Stresses in Thin Films: III-nitrides a case study	T W Canzler PIN OLED Devices for Displays & Solid State Lighting	A Madan Operation of Strained-Si CMOS and SiGe HFETs in Extreme Environments
12:00	K Banerjee Carbon Nanomaterial based Interconnects and Passives for Next-Generation ICS	K Baskar Structural and electrical characterization of GaN and InGaN epitaxial layers grown by MOCVD	R. Gopi Chandran Phoshors for solid State Lighting	N Bhat Effect of Volume Inversion in Ultra-Thin-Body Double Gate FET
12:30	E Napoli Analytical model for electric field distribution in asymmetrical unbalanced 2D Superjunction devices	H (Grace) Xing Top-down AlN/GaN nanoribbon HFETs	M Katiyar Effect of chain length on colour purity, efficiency, and stability of blue polymer light emitting diodes	P M Asbeck Tunneling III-V MOSFETs for End of the Roadmap Applications
13:00 - 14:00	LUNCH			
14:00	Plenary Talk (HALL 1)	Bhushan Sopori, National Renewable Energy Laboratory U.S	Defects in Multicrystalline Silicon: Their Origin and Influence on Solar Cell Performance	
	HALL 1	HALL 2	HALL 3	HALL 4
	<i>Emerging Tech:VI</i>	<i>OPTO:II</i>	<i>Displays and solid state lighting:IV</i>	<i>Photovoltaics:III</i>
14:50	V.K. Tewary Causal Green's function for extending time scales in molecular dynamics: Application to propagation of ripples in graphene	Y R Wu Strain Engineering in InGaN/GaN Light Emitting Diodes	H.S Kwok Recent Advances in Low Temperature Polycrystalline Silicon Technologies	A.N Tiwari Flexible CIGS and CdTe solar cells on polymer films with high photovoltaic conversion efficiencies
15:20	MVS Chandrashekhkar Recent Developments in Epitaxial Graphene	R Butte Room temperature polariton lasing and condensation effects in III-nitride microcavities	D Gupta Advances in Passive Matrix OLED Displays and towards Active Matrix Displays in India	J M Fernandez Substrate Technology Developments for Low Cost Advanced PV Cell Options
15:50	D Jena Graphene Physics and Device Applications	M. Husain Carbon Nanotubes based Field Emission Display	V C Nogueira Solution Processable Materials for Ink Jetting	T Takashima Overview of Photovoltaics R&D in Japan.
16:20-16:35	TEA - COFFEE			
16:35	Poster Session - II Poster Number.: 121- 240		Plenary Industry Session 1. Om Nalamasu (Applied Materials) 2. Juregen Gramss (Visitec) 3. Mustafa Kansiz (Varian)	
19:30	Cultural evening followed by Dinner			

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Friday, December 18, 2009				
09:00	Plenary Talks (HALL 1)	G. H. Döhler, Max Planck Institute		Terahertz physics – where ultra-low frequency optics meets ultra-high frequency RF engineering
09:45		G. Rajeswaran, Baer	Moser	Advances in Silicon Photovoltaic Technologies
10:30 - 11:00	TEA - COFFEE			
Time	HALL 1	HALL 2	HALL 3	HALL 4
	<i>Emerging Technologies - VII</i>	<i>OPTO:III</i>	<i>Adv Mat Growth and Charact:II</i>	<i>Silicon CMOS:III</i>
11:00	V Schmidt Aspects of Silicon Nanowires Growth	F Koyama Wavelength Control of VCSELs	R Singh Direct Wafer Bonding and Implantation-Induced Layer Splitting of Semiconductors for Novel Engineered Substrates	S Roy Simulation of Variability and Reliability in Nanoscale CMOS
11:30	M. P. Anantram Modeling of Silicon Nanowires: Direct-to-indirect bandgap transition and hole mobility	P K Basu Transistor Lasers: Physics, Applications and Modeling Issues	R E Stahlbush Basal Plane Dislocations in SiC Epitaxy: UVPL Images, Their Electrical Effects and Reduction Methods	A Chakraborty Bipolar Transistor Equivalent Circuit Models
12:00	S Oda Silicon Quantum Dot Devices	S Ghosh Optical polarization sensitivity of cubic III-V semiconductor heterostructures	G Yusa Electrically controlled quantum coherences of nuclear spins in GaAs point contacts	C R Selvakumar Percolation Modeling Approach for the Soft and Hard Gate Oxide Breakdown
12:30	J Motohisa Growth of nanowires by selective-area metalorganic vapor phase epitaxy and their applications	S Guha Optical Nonlinearities of Semiconductors	B M Arora A novel fibre optic system for polarization sensitive spectroscopic measurements of semiconductors	J L Sanchez 3D Heterogeneous Functional Integration : An alternative way to develop new power intergrated functions
13:00 - 14:00	LUNCH			
14:00	Plenary Talk (HALL 1)	Jagdish (Jay) Nararyan, North Carolina State University	Frontiers in Nanomaterials Processing and Characterization	
	HALL 1	HALL 2	HALL 3	HALL 4
	<i>Emerging Technologies - VIII</i>	<i>Silicon CMOS:IV</i>	<i>Adv Mat Growth and Charact:III</i>	<i>Displays and solid state lighting - V</i>
14:50	A Ramam Nano Structures for Enhanced Device Performance	A Sachid Technology-Aware Design using FinFETs at Sub-22 nm End-of-CMOS Roadmap Logic and SRAM Applications	Harsh Carbon Nano-Tube Based Field Emitters For Vacuum Microelectronic Applications	J K Kim Solid State Lighting – The Replacement Paradigm & Beyond
15:20	A Prabhakar Spin torque devices and applications	K Shiraishi Atomistic Studies for MONOS-Type Charge Trap Memories. A Theoretical Guiding Principles for High Program/Erase Endurance	S Rao Determination of the lattice parameters and composition of III-V semiconductor thin films using the CBED-HOLZ technique	S Ghosh How to achieve high performance Organic Field Effect Transistor(OFET)?
15:50	F E H Tay Embedded & Hybrid Systems Development for Wearable Healthcare Applications	M Shrivastava Reliability Aware I/O Design for sub 45nm NODE CMOS Technology	G. Rajaram Magnetic Field Sensor using III-V Multilayer structures: New Insights into Ohmic Contact Formation to GaAs from Magnetization Measurements	J Kumar Self-assembled Wide band gap Semiconductor for Solid State Lighting
16:05				
16:20	TEA - COFFEE			
16:35	Poster Session - III			
	Poster number : 241 - 360			
19:30	DINNER			

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Saturday, December 19, 2009				
09:00	Plenary Talks (HALL 1)	Bipin Rajendran, IBM T.J. Watson Research Center	Emerging Memory Technologies – Just hype or is there real hope?	
09:45		S.K. Mazumder, University of Illinoisat	Photonic Modulation of SiC based Power Semiconductor Device Switching Dynamics using Optically Triggered Power Transistor	
10:30		Hiroimichi ohashi, NIAIST	Role of Green Electronics for Low Carbonated Society toward 2030	
11:15 - 11:30	TEA - COFFEE			
Time	HALL 1	HALL 2	HALL 3	HALL 4
	<i>HPD:I</i>	<i>Adv Mat Growth and Charact:IV</i>	<i>Photovoltaics:IV</i>	
11:30	R. Sodhi Latest Advancements in Power MOSFETs for Improved System Efficiency	G Bhagavannarayana Characterization of Si1-xGex/Si Epitaxial films and the HBTs based on these layers by High-resolution XRD, Raman line shift and Diffuse X-ray scattering techniques	P Chakraborty Performance of micro-crystalline silicon single junction and micromorph solar cells: a computer simulation study	
12:00	L Lorenz Power Semiconductor Devices -Enabling Technology for Energy Efficiency and Embedded Power Integration	S G Mhaisalkar Printed Electronics: Nanostructured Materials, Processing, and Integrated Devices	B. Ganesh Properties of directional solidified mc-Si wafers & a high speed wafer sorting technology for solar cell production	
12:30	V. Benda A note on non-uniform recombination in large area silicon devices		C.S. Solanki Si Quantum Dots for PV	
13:00	M Jennings Si/SiC and Ge/SiC heterojunctions for Silicon Carbide Device Applications		Amlan J Pal Organic/Inorganic Hybrid Systems in Photovoltaic Devices	
13:30 - 14:30	LUNCH			
14:30	CLOSING SESSION (HALL - 1)			

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