

2022 IIT TECHNICAL PROGRAM GUIDE

MONDAY ORAL SESSIONS			
Presidential Ballroom, Second Floor, Salons C&D			
MO1: Opening Session			
9:00 AM	Susan Felch	MO1.01	Welcome and Overview
9:15 AM	Kevin Jones	MO1.02	In Memoriam
MO2: Implant Systems			
9:30 AM	Hiroaki Kai	MO2.01	Development of Ultra-High-Current Implanter for Material Modification Process in Next Era Devices
9:50 AM	Michael Current	MO2.02	Particle Counts and Size Distributions after Implantation with On-Wafer Graphite Sources
10:10 AM	Wei Fan	MO2.03	High Temperature Electrostatic Chuck Enabled by BN Dielectrics
10:30 AM			Break
MO3: Plenary Session I			
11:00 AM	Fred Roozeboom	**MO3.01	Technical Developments of Thermal Annealing in the Past Sixty Years, and Future Perspectives
11:40 AM	Tony Renau	**MO3.02	35 Years of Challenge and Innovation in Ion Implant
MO4: Novel Doping Processes and Techniques			
2:00 PM	Didier Landru	*MO4.01	Smart Cut, FD-SOI and Integration Challenges
2:30 PM	Jonathan England	MO4.02	Experiments and Modelling to Understand Implanted Layer Exchange Production of Isotopically Pure Si and Ge Layers for Quantum Computers
2:50 PM	Lydia Kuebler	MO4.03	TEM Investigation of Extended Defects in Aluminum Implanted 4H-SiC Substrates
3:10 PM	Leonhard Sturm-Rogon	MO4.04	Comparison of Annealing Quality after 3e15/cm2 50keV BF2+ Implant Between Rapid Thermal Annealing and Furnace Annealing
3:30 PM	Weng Siong Chan	MO4.05	The Examination of Source Life and Beam Parameters of Germanium Implantation Using Hydrogen Carrier Gas
3:50 PM			Break
MO5: Novel Annealing Processes and Techniques			
4:20 PM	Kyoichi Suguro	*MO5.01	Where is the Annealing Technology Going for Better Device Performance?
4:50 PM	Elena Nieto Hernández	MO5.02	Photoluminescence Characterization of He-Implanted SiC Upon Nanosecond Laser Thermal Annealing
5:10 PM	Silke Hamm	MO5.03	Thermal Budget Reduction for Spike Anneals in a Conventional RTP Tool
5:30 PM	Seunghun Baik	MO5.04	Nanosecond Pulsed Laser Activation of Phosphorus in Germanium

TUESDAY ORAL SESSIONS			
Presidential Ballroom, Second Floor, Salons C&D			
TU1: Doping Applications			
9:00 AM	Oleg Gluschenkov	*TU1.01	Laser Annealing Applications for Advanced FinFETs and Beyond
9:30 AM	Hao Yu	TU1.02	Ion Implantation Isolation for GaN HEMT: Mechanism and Parasitic Effects
9:50 AM	Pierre-Louis Julliard	TU1.03	Characterization of Structural Defects Induced by Heated Implantations and Annealing Process
10:10 AM	Tsunenobu Kimoto	*TU1.04	Ion Implantation Technology in SiC for Advanced Electron Devices
10:40 AM			Break
TU2: Advanced Implant/Doping and Annealing Equipment			
11:10 AM	James S DeLuca	TU2.01	Advanced Angle Control Requirements and Solutions for Enabling High Aspect Ratio Device Structures
11:30 AM	Hiroaki Kariya	TU2.02	Precise Angle Control for Channeling in SS-UHE, Single Wafer Ultra-High Energy Ion Implanter
11:50 AM	Vikram M Bhosle	TU2.03	PMOS Rc Reduction Using B2H6 Plasma Doping Process for Current and Next Gen DRAM Devices
12:10 PM	Sarko Cherekdjian	TU2.04	New ECR Ion Implanter with Advanced Temperature Control
12:30 PM	Atul Gupta	TU2.05	Introducing the Purion H200™, Single Wafer High Current Implanter Designed to Address Unique High Dose Implant Applications
TU3: Annealing Technologies and Processes I			
2:00 PM	L. Rebohle	*TU3.01	Flash Lamp Annealing of Semiconductor Materials
2:30 PM	Minh Anh Luong	TU3.02	Influence of N Doping on the Crystallization Kinetics of Phase Change Materials (Ge2Sb2Te5)
2:50 PM	Kevin Jones	TU3.03	Time Resolved Reflectometry with Pulsed Laser Melting of Implant Amorphized Si1-xGex Thin Films
3:10 PM	Angela Alvarez Alonso	TU3.04	Optimization of Solid Phase Epitaxial Regrowth Assisted by UV Nanosecond Pulsed Laser
3:30 PM	Anna Johnsson	TU3.05	Continuum Simulations of the Evolution of Faulted and Perfect Dislocation Loops in Silicon During Post-Implantation Annealing
TU4: Plenary Session II			
3:50 PM	Hitoshi Wakabayashi	**TU4.01	Integration Technologies for pn-Stacked TMDC CMOS Devices

PS1: POSTER SESSION I			
Tuesday, 4:30 PM - 5:30 PM			
Presidential Ballroom, Second Floor, Salons A&B and Foyer			
Presenter	Final ID	Title	
Ying Tang	PS1.01	The Performance of the Fourth Generation of Safe Delivery Source® (SDS®4) Package on AIBT iPulsar High Current Implanter	
Ying Tang	PS1.02	Investigation of Various Source Materials and Co-Gases for Fluorine Ion Implantation Performance Improvement	
Ying Tang	PS1.03	Germanium Ion Implantation Performance Improvement on Applied Materials' VISta HCS High Current Implanter with Use of Germanium Tetrafluoride (GeF4) and Hydrogen (H2) Mixture Gases	
Ying Tang	PS1.04	Performance Improvement on SMIT SHX-III High Current Ion Implanter through the use of EnrichedPlus 72Germanium Tetrafluoride (enPLUS 72GeF4) and Hydrogen (H2) Mixture Gases	
Ying Tang	PS1.05	Investigation of Source Materials, Co-gases, and Methods for Aluminum Ion Implantation	
Weihang Guan	PS1.06	Performance and Reliability of the Fourth Generation of Safe Delivery Source® (SDS®4) in the Ion Implantation Application	
Ji-Hyuk Choi	PS1.07	Charge Transport in Doped and Strongly Coupled Nanocrystal Films	
Barry Chambers	PS1.08	Results and Adoption of Safe Delivery Source® (SDS®4) on VISta® HCP	
Jose Arno	PS1.09	How Safe Is a Safe Dopant Gas Delivery System?	
Jose Arno	PS1.10	Dopant Gas Purity and Adsorbent Stability	
Takuya Sakaguchi	PS1.11	Temperature Effect in High Dose, Medium Energy Implantation with Single-Wafer-Type Implanter	
Daryush Ila	PS1.12	Ionization Induced Carbon Phase Changes in Graphite	
Hiroki Murooka	PS1.13	Enhancement of Al+ Beam Current in GSD III-180	
Tae Hoon Huh	PS1.14	A Study of Beam Divergence Effects for Medium Dose Channeling Implants	
Michael Current	PS1.15	Ion Erosion and Particle Release in Fine Graphite	
Michael Current	PS1.16	Profiles and Defects in Highly-channelled and Random Beam Orientation MeV Dopant Implants in Si(100)	
Michael Current	PS1.17	PL and SRP Studies of Phos Implants	
Walter Wriggins	PS1.18	Ion Erosion and Elemental Purity of Deposited Films on Al	
Yoji Kawasaki	PS1.19	Individual Dopant Profiles in High Energy Multiple Implantation Under Channeling Conditions	
Shinya Takemura	PS1.20	Beam Shape Control System by Machine-Learning on the NISSIN BeyEX Medium Current Ion Implanter	
Baonian Guo	PS1.21	Scaled FinFET Well Formation Using Heated Implantation	
Serguei Kondratenko	PS1.22	Analysis of Dopant Distribution Profiles of Very High Energy Implants	
Wilhelm P Platow	PS1.23	Neutron Radiation due to High Energy Boron Ion Beams	
Greta Andrini	PS1.24	Assessment of a 2MeV Li+ Ion Beam Resolution by means of the Ion Beam Induced Charge Technique	

WEDNESDAY ORAL SESSIONS
Presidential Ballroom, Second Floor, Salons C&D

WE1: Advanced Metrologies for Implant/Doping and Annealing Processes I

9:00 AM Temel Buyuklimanli	*WE1.01	Metrologies to Study Ion Implanted Semiconductor Materials
9:30 AM Zsolt Zolnai	WE1.02	Lateral Mapping of Damage Patterns in Plasma Immersion Ion Implanted Silicon
9:50 AM Abhijeet Joshi	WE1.04	Measuring Sub-nm Activation Profiles in Very Highly Doped Semiconductors
10:10 AM		BREAK

WE2: Advanced Technologies and Processes

10:40 AM Toshiyuki Tabata	*WE2.01	NS-Pulsed Melt Laser Annealing for Advanced CMOS Contacts
11:10 AM Ryota Wada	WE2.02	The Detail Analysis of Behavior of Heavy Metals In 4H-SiC
11:30 AM Jongjin Hwang	WE2.03	Comparative Evaluation of Indirectly Heated Cathode DC Ion Source and Inductively Coupled Plasma RF Ion Source at High Current Ion Implanter
11:50 AM Jeremy Andre Turcaud	WE2.04	Risk of Neutron Generation with Implantation of Light Ions

THURSDAY ORAL SESSIONS
Presidential Ballroom, Second Floor, Salons C&D

TH1: Annealing Technologies and Processes II

9:00 AM Jacob Jensen	*TH1.01	Millisecond and Sub-Millisecond Annealing
9:30 AM Frank Torregrosa	TH1.02	Ion Implantation and Activation of Aluminum in Bulk 3C-SiC and 3C-SiC on Si
9:50 AM Daryush Ila	TH1.03	Fabrication of Nano- to Micro-Scale Optical Structures in Silica

TH2: Advanced Metrologies for Implant/Doping and Annealing Processes II

11:30 AM John Byrnes	*TH2.01	Review of Applications of Defect Photoluminescence Imaging (DPLI) to Monitoring Crystallographic Defects During IC Processing
12:00 PM Sasha Kurkuoglu	TH2.02	Advanced Process Control Method for Inline Isolation Implant Monitoring in III-V GaAs Semiconductor Fabrication
12:20 PM Andrzej Wieslaw Turos	TH2.03	Defect Microstructure in Ion Implanted GaN

TH3: Implant/Doping Technologies and Processes

2:00 PM Sébastien Kerdiles	*TH3.01	More Than Moore Applications of Nanosecond Laser Annealing
2:30 PM James S DeLuca	TH3.02	Silicon Damage from Timescale Modulation for Dose Accumulation in Single Implant and Damage Interactions Between Multiple Implants
2:50 PM Tac Hoon Huh	TH3.03	Defects and Dopants Behavior of Medium Dose Range Implant into Heated Silicon Wafers
3:10 PM		Break

TH4: Advanced Materials Processing & Closing Remarks

3:40 PM Hao Yu	*TH4.01	Metal/Semiconductor Contact Investigations for Applications in Advanced CMOS Technology
4:10 PM John O Borland	TH4.02	Strain Characterization of Si+Ge, SiGe+Ge, SiGe+C, Ge+C, Ge+Sn & Si+Ge+Sn Thin Layers Formed By Implantation With RTA or Laser Melt Annealing Using SIMS, XPS, EDX-TEM, Raman and XRD Analysis
4:30 PM Laurent Lachal	TH4.03	Nitride Stress Inversion Using Plasma Immersion Ion Implantation
4:50 PM Michael Ewald Rueb	TH4.04	Key Physical Features and Applications of High Energy Ion Implantation Using the Energy-Filter Technology
5:10 PM Susan Felch		Closing Remarks

PS2: POSTER SESSION II
Thursday, 10:10 AM - 11:30 AM
Presidential Ballroom, Second Floor, Salons A&B and Foyer

Advanced Implant/Doping and Annealing Equipment

Yusuke Kuwata	PS2.01	IMPHEAT-II, A Novel High Temperature Ion Implanter for SiC Power Devices
Jakub Rybczynski	PS2.02	Electrostatic Ion Implant Chuck with Fast Declamp Response Through Charge Control
Yuya Hirai	PS2.03	New Control System of the Multiple Filaments in the Large Ion Source for Ion Doping System IG6 Ver.2
Suguru Itoi	PS2.04	A Newly Developed ECR Ion Source with Wide Dynamic Range of Beam Current
Wilhelm P Platow	PS2.05	Linac Simulation with Dataset Generator
Pratim Palit	PS2.06	Improvements Enabled in SiC Power Devices by Advancements in Ion Implantation Hardware
Bo Vanderberg	PS2.07	Ion Implanter Beam Optics Design Using Global Optimization Techniques
Shu Satoh	PS2.08	Purion XEmax, Axcelis Ultra High Energy Implanter with Boost Technology
Frank Torregrosa	PS2.09	Unique Features of FLEXion Tool for Wide Band Gap and III-V Semiconductor Devices Fabrication

Advanced Metrologies for Implant/Doping and Annealing Processes

Anne-Sophie Robbes	PS2.10	Compositional Measurement of Confined SiGe Devices with Self Focusing SIMS
Hiroyuki Kariya	PS2.11	Detection of Particles in the Ion Beam
Robert T Fryer	PS2.12	Reduction of Wafer Charging Effects with Advanced Electrostatic Chuck Technologies
Haruka Sasaki	PS2.13	Sheet-Resistance Measurement for Ultra-High Energy Ion Implantation
Ende Lutz	PS2.14	Low Temperature Monitoring with Implantation and Silicidation
Sonjoy Dey	PS2.15	Physical, Electrical and Electrochemical Characterization of 2D Materials (Graphite, GNP and GO)

Modeling and Simulation of Implant/Doping and Annealing Processes

Jeremy Andre Turcaud	PS2.16	Ion Implantation Simulation and Optimization in Semiconductor Compounds
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Device Applications for Implant/Doping and Annealing Processes

Florian Horst Schaper	PS2.17	Optimization of Doped Lanthanated Tungsten Components in Ion Sources by Determining the Temperature Profile for Halogen Processes
Baonian Guo	PS2.18	Cryogenic Implantation to Boost PFET Performance and Improve Variability in 3D NAND Flows
Michael Current	PS2.19	Angle-Directed Ion Beams for Localized Deposition on High Aspect Ratio Structures