GADEST 2024 conference program 08.09.24-13.09.24

Sunday, 08 September, 2024			
13:30-15:30	**Registration**		
15:30-15:40	**Opening**		Johannes Heitmann
15:40-17:00	**Plenary session. Session chair: Johannes Heitmann**		
15:40-16:15	Hans Richter		40 years of GADEST
16:15-17:00	Stefan Eichler		Investigation of dislocations in III-V Semiconductors
17:00-18:20	**SuA Session: Novel approaches. Session chair: Johannes Heitmann**		
17:00-17:40	I01	Joachim Knoch	Cryogenic Electronics and Novel Semiconductor Doping Approaches
17:40-18:20	I02	Michael Trupke	Quantum sensing and quantum photonics with spin centres in crystals
19:00-20:00	**Get together**		

Monday, 09 September, 2024			
08:30-10:10	**MoM1 Session: Material processing. Session chair: Daniel Hiller**		
08:30-09:10	I03	Enrico Napolitani	Laser-assisted crystallisation and hyperdoping
09:10-09:30	O01	Tim Niewelt	Recombination-active Defects in Crystalline Silicon after Muon Implantation
09:30-09:50	O02	Damiano Ricciarelli	Realistic Simulation and Physical Understanding of Laser Melting in Silicon-Germanium Substrates
09:50-10:10	O03	Hui Jia	Effects of phosphorous and antimony doping on Ge layers grown on Si
10:10-10:40	**Coffee break**		
10:40-12:20	**MoM2 Session: Defects and Devices. Session chair: Franziska Beyer**		
10:40-11:20	I04	Marianne E. Bathen	Radiation Induced Defects in SiC Material and Devices
11:20:11:40	O04	Vladimir Markevich	Electron-irradiation-induced EE1 trap in GaN: unusual electronic properties of a defect linked to the nitrogen vacancy
11:40-12:00	O05	Aravind Subramanian	Dislocation analyses in the boron-doped germanium crystals grown under thermodynamic equilibrium conditions
12:00-12:20	O06	Martin Perrosé	Defect engineering for enhanced silicon RF substrates
12:20-13:30	**Lunch break**		
13:30-15:30	**MoA1 Session: Group IV alloys. Session chair: TBD**		
13:30-14:10	I05	Jörg Schulze	Growth of Silicon-based Germanium Tin Alloys
14:10-14:30	O07	Kevin Sewell	Disorder and Strain in Limiting the n-type Mobility of GeSn Alloys: Calculations from First Principles.
14:30-14:50	O08	Christoph Zechner	TCAD Model for SiGe Oxidation and Ge Diffusion along Oxide/SiGe Interfaces
14:50-15:10	O09	Christoph Wilflingseder	Ge nanosheets on Si substrates enabled by ultra-low temperature epitaxy
15:10-15:30	O10	Felipe Murphy Armando	First principles calculation of G-Centre Photoluminescence in SiGe and comparison to Experiments
15:30-16:00	**Coffee break**		
16:00-17:40	**MoA2 Session: Nano materials and structures. Session chair: TBD**		
16:00-16:40	I06	Jonathan Veinot	Are silicon nanoparticles “crystalline to the core” and does it make a difference in post-synthesis doping?
16:40-17:00	O11	Laurie Dentz	From nanosphere lithography to localised heteroepitaxy of GaAs on Si
17:00-17:20	O12	Raphael Behrle	Comparative Study of Charge Carrier Transport in Al-Si and Al-Ge Nanowire Heterostructure Transistors
17:20-17:40	O13	Moritz Brehm	Direct band transitions and light emission from ion-implanted SiGe Quantum Dots grown on Si-on-Insulator Substrates
17:40-18:20	**Industrial session. Session chair: Johannes Heitmann**		
19:00-22:00	**MOP poster session. Session chair: Franziska Beyer**		

Monday, 09 September: MOP poster session 19:00-22:00		
MP01	Lyudmila Khirunenko	Temperature-induced transformation of the BO2 atomic configuration in boron-doped Si
MP02	Pejk Amoroso	Point defects in Ga- and B-doped Ge
MP03	Ulrich Bläß	Basal dislocations in HVPE grown GaN – characterisation and importance for stress relaxation during growth.
MP04	Oleg Olikh	The peculiarities of the ultrasound influence on the FeB pair association in silicon structures
MP05	Oleg Olikh	Defect content characterization in solar cells with the assistance of machine learning
MP06	Ingmar Ratschinski	Modulation Acceptor Doping of Silicon using Gallium-Doped SiO2
MP07	Martin Herms	Residual Stress and Defects in a Single-crystalline (0001)AlN Wafer Investigated by Scanning Infrared Depolarization and White Beam X-ray Topography
MP08	Hitesh Jayaprakash	Suppression of Stacking Fault Expansion with Energy-Filtered Ion Implantation in 4H-SiC Epitaxial Material
MP09	Merve Karaman	Self-assembly of W centers and their optical properties in microdisk resonators
MP10	Kevin Lauer	Investigation of Tl-doped silicon by low temperature photoluminescence during LID treatments
MP11	Ezekiel Omotoso	DLTS characterisation of 107 MeV krypton ion-irradiated nitrogen-doped 4H-silicon carbide
MP12	Faiza Al-Hamed	Point defect calculations with finite-size supercells in monolayer MoS2
MP13	Aaron Flötotto	Theoretical investigation of single Boron defects in silicon
MP14	Antonino Scandurra	Effects of Hydrogen Bonding in Silicon Nitride/Polyimide Passivation Stack for SiC Power Devices
MP15	Jérémi Crozelon	Progress of characterization methodology for oxygen-related defects in silicon substrates for advanced technologies
MP16	Christian Röder	operando analysis of self-heating effects on AlN-based HEMTs on SiC by confocal micro-Raman spectroscopy
MP17	Sergey Pavlov	Violation of selection rules for parity-forbidden optical intracenter transitions in crystalline silicon: substitutional versus interstitial defects
MP18	Andrey Sarikov	Thermodynamic study of phase composition of Si oxynitrides obtained at different temperatures
MP19	John Murphy	Spectral engineering of photoluminescence from monolayer MoS2
MP20	Diego Haya Enriquez	Design analysis of group IV light emitters containing SiGe dot-based active medium
MP21	Lorenzo Calcaterra	Optoelectronic, Microstructural and Chemical Characterization of 2D PEA2PbBr4 Perovskite Thin Films
MP22	Enrique Prado Navarrete	(Si)Ge nanosheets on SOI, grown by Molecular Beam Epitaxy at Ultra Low Temperatures, as a planar platform for RFET devices.
MP23	Eskil Einmo	Morphology and refractive index dependence on laser parameters in subsurface ultrashort pulsed laser processing of ZnS
MP24	Rustam Ashurov	Ion flux distribution in ion beam assisted silicon molecular beam epitaxy
MP25	Nikolay Arutyunov	Centers of bismuth and phosphorus in silicon for devices of quantum communications in space: open volume point defects

Tuesday, 10 September, 2024			
08:30-10:10	**TuM1 Session: Defects in solar cells. Session chair: TBD**		
08:30-09:10	I07	José Coutinho	Theory of hydrogen reactions in solar silicon and connections with LeTID
09:10-09:30	O14	Vladimir Voronkov	Properties of hydrogen species in n-type silicon deduced from in-diffusion profiles
09:30-09:50	O15	AnYao Liu	Recombination Activity of Iron-Gallium and Chromium-Gallium Pairs in Silicon
09:50-10:10	O16	Clara Rittmann	Recombination Activity of Crystal Defects in Epitaxially Grown Silicon Wafers for Highly-Efficient Solar Cells
10:10-10:40	**Coffee break**		
10:40-12:20	**TuM2 Session: Passivation methods. Session chair: TBD**		
10:40-11:20	I08	Bart Macco	Recent Advances and Trends in Atomic Layer Deposited Surface Passivation Schemes for Silicon, Germanium and III-V Semiconductors
11:20-11:40	O17	Nicholas Grant	Separating surface and bulk recombination mechanisms during the activation of Al2O3 passivation
11:40-12:00	O18	John Murphy	Hafnium oxide surface passivation of silicon
12:00-12:20	O19	Konstantinos Efstathios Falidas	In-situ mixed and cycle-to-cycle Atomic Layer Deposition for Al-doped ZrO2 based Metal-Insulator-Metal decoupling capacitors placed in BEoL
12:20-13:30	**Lunch break**		
13:30-15:30	**TuA1 Session: Group IV: defects. Session chair: TBD**		
13:30-14:10	I09	Laetitia Vincent	Growth-related I3 defects in hexagonal Ge-2H and their thermal evolution
14:10-14:30	O20	Eddy Simoen	DLTS assessment of grown-in defects in hetero-epitaxial gate stacks for stacked silicon nanosheet channels
14:30-14:50	O21	Alexandra Abbadie	Study of gettering in Silicon and SOI
14:50-15:10	O22	Felix Kipke	The Diffusion Behavior of Sulfur in Silicon – A New Perspective
15:10-15:30	O23	Dawid Kot	Comparison of experimental and simulated results on the formation of N-related complexes in silicon
15:30-16:00	**Coffee break**		
16:00-18:00	**TuA2 Session: WBG-devices. Session chair: TBD**		
16:00-16:40	I10	Martin Kuball	Next Generation of Electronics Devices: Heterogenous Integration with Diamond
16:40-17:00	O24	Antonino Scandurra	Defect formation mechanisms and 2-DEG isolation induced by low-energy Ar, C, Fe ion implantation of Al0.2Ga0.8N/GaN heterostructure
17:00-17:20	O25	Lijie Sun	Optical and electrical characteristics of the FeGa defect in dilute AlxGa1-xN alloys
17:20-17:40	O26	Alexander Kinstler	Direct investigation of localized leakage currents in GaN on sapphire pin diodes with respect to structural defects and conduction mechanisms
17:40-18:00	O27	Stefan Schmult	A novel deep acceptor in GaN
19:00-22:00	**TUP poster session. Session chair: Daniel Hiller**		

Tuesday, 10 September: TuP poster session 19:00-22:00		
TP01	Diana Ryzhak	Investigation of dislocations introduced in Si wafers during flash lamp annealing by means of photoluminescence (PL) and µ-PL spectroscopy
TP02	Oleg Olikh	Influence of illumination spectrum on dissociation kinetic of iron-boron pairs in silicon
TP03	Franziska C. Beyer	Point defect characterisation of proton irradiated n-type GaAs
TP04	Katell Blanco	In-situ observation of pressurized micro cracks in GaN
TP05	Sirine Houam	Experimental investigation of the interaction between structural defects and impurities in silicon for photovoltaic applications
TP06	Mette Schouten	I3 defects in hexagonal silicon germanium
TP07	Ingmar Ratschinski , Daniel Hiller	ALD-HfO2 and ALD-SiO2 as a Charge-lean Capping Layer Materials for Modulation Acceptor Doping of Silicon
TP08	Vladimir Kolkovsky	Shallow hydrogen-related donors after a dc H plasma treatment in Si
TP09	Vladimir Kolkovsky	Surface photovoltage spectroscopy for evaluation of oxidation processes in the microelectronics industry
TP10	Umutcan Bektas	Spatially-Resolved Ion Beam Induced Phase Transition and Defect Analysis in Gallium Oxide
TP11	Mykola Kras'ko	Kinetics of carrier lifetime degradation in high-temperature 1 MeV electron-irradiated Cz n-Si associated with the formation of divacancy-oxygen defects
TP12	Mariia Terletskaia	Efficient surface passivation of germanium by porous Ge layer
TP13	Teimuraz Mchedlidze	Pros for using MFIA in deep level transient spectroscopy studies
TP14	Tamás Szarvas	Edge inspection of Si wafers for Bulk Microdefects
TP15	Steffen Fengler	Detection of defect transitions in ultra-wide bandgap semiconductors by dc and ac surface photovoltage spectroscopy
TP16	Kevin Sewell	First-Principles Calculation of Electron Absorption and Recombination in Strained GeSn
TP17	Zhongshu Yang	Investigating the effect of iron contamination and gettering in polysilicon passivating contact solar cells
TP18	Dirk König	The Nanoscopic Electronic Structure Shift Induced by Anions at Surfaces (NESSIAS) to replace doping in nano-Si for VLSI
TP19	Andreas Salomon	Advanced device designs for group IV double-heterostructure light- emitting diodes operating at room temperature
TP20	Amy Albrecht	Optical characterization of colour centres in AlN
TP21	Christian Miersch	Process Mode Engineering of Atomic Layer Etching of Wide-Bandgap Materials
TP22	Stephan Wege	Falp® (Fast Atomic Layer Processing) a Chamber for Combined PEALD and ALE Processes at low temperatures
TP23	Vitor Jose Torres	Exceptional phonon point versus free phonon coupling in CdZnTe semiconductor mixed crystals under pressure
TP24	Christoph Zechner	Process Model for SiC Oxidation for a Large Range of Conditions
TP25	Enrico Napolitani	Synthesis of MoS2 layers by sputter deposition and pulsed laser annealing

Wednesday, 11 September, 2024			
08:30-10:10	**WeM1 Session: Si-based Quantum devices. Session chair: TBD**		
08:30-09:10	I11	Shao Qi Lim	Towards a silicon semiconductor vacuum: donor spin decoherence in isotopically engineered 28-silicon
09:10-09:30	O28	Alexander Malwin Jakob	Engineered Donor-Qubit Arrays for Silicon Quantum Computing
09:30-09:50	O29	Kevin Lauer	Exploring ASi-Sii-defects as qubits
09:50-10:10	O30	Johannes Aberl	Fabrication and vertical position control of silicon colour centres via ultra-low temperature molecular beam epitaxy
10:10-19:00	**Excursion**		
19:00-22:00	**Conference dinner**		

Thursday, 12 September, 2024			
08:30-10:10	**ThM1 Session: Material growth & characterization. Session chair: TBD**		
08:30-09:10	I12	Kaspars Dadzis	Multiphysical modelling of bulk crystal growth: from furnace design to defect engineering
09:10-09:30	O31	Shuai Yuan	Growth stability and defect generation of grain boundaries during directional solidification
09:30-09:50	O32	Jie Huang	Phosphorus gettering effect on iron-related defects around dislocations with different densities in N-type cast-mono silicon
09:50-10:10	O33	Katja Mustonen	Characterization of electrically active defects in semiconductor-grade Cz-Si by photoluminescence imaging
10:10-10:40	**Coffee break**		
10:40-12:20	**ThM2 Session: Solar Cell Degradation. Session chair: Matthias Müller**		
10:40-11:20	I13	Mariana Bertoni	Hydrogen-induced degradation dynamics in silicon heterojunction solar cells via machine learning
11:20:11:40	O34	Katharina Peh	Relationship between the P-line in indium-doped silicon spectra and the recent ASi-Sii defect model.
11:40-12:00	O35	Zhenyi Ni	Resolving the defects in polycrystalline metal halide perovskite by photoluminescence technique
12:00-12:20	O36	Daniela Cavalcoli	The role of Electron Trapping and Ion Drift on Photo-Induced Current Transient Spectroscopy of Metal Halide Perovskites
12:20-13:30	**Lunch break**		
13:30-15:30	**ThA1 Session: Defect characterization I. Session chair: TBD**		
13:30-14:10	I14	Koji Yokoyama	Muon probes of charge carrier kinetics in semiconductors
14:10-14:30	O37	Martin Herms	Photo-elastic Characterization of Twin Structures and Growth Striations in InP and GaAs Crystals
14:30-14:50	O38	Tim Böckendorf	Characterization of electrically active defects in elemental and compound semiconductors by means of Scanning Spreading Resistance Microscopy
14:50-15:10	O39	Vladimir Kolkovsky	Positively charged defects in Ta2O5 and Nb2O5: are they correlated with sodium ions?
15:10-15:30	O40	Samira Khelifi	Secondary phases detection in CuInS2 single crystal
15:30-16:00	**Coffee break**		
16:00-17:40	**ThA2 Session: Defect characterization II. Session chair: TBD**		
16:00-16:20	O41	Roland Weingärtner	Enhanced emission in erbium and ytterbium doped gallium oxide devices based on the sensitization of oxygen vacancies
16:20-16:40	O42	Viktoriia Nikonova	Threading dislocation line mapping in aluminum nitride wafers using X-ray topography in reflection geometry
16:40-17:00	O43	Houwei Pang	Investigating the surface quality of wide bandgap materials using surface photovoltage spectroscopy
17:00-17:20	O44	Nishant Saini	Defect Noise & Multi-Defect Leakage Paths in Amorphous PECVD SiCN
17:20-17:40	O45	Kuei-Shen Hsu	Investigation of striations in single-crystalline silicon wafers by THz-TDS and other characterization methods
19:00-21:00	**Dinner**		

Friday, 13 September, 2024			
08:30-10:30	**FrM1 Session: Doping. Session chair: TBD**		
08:30-09:10	I15	Michele Perego	Nanoscale Periodic Modulation of Doping over Large Areas by Means of Block Copolymer Lithography and Ion Implantation
09:10-09:50	I16	Dirk König	Direct Acceptor Modulation Doping for nano-Si: Foundations, Material Systems, Applications
09:50-10:10	O46	Soundarya Nagarajan	The Effect of Aluminium-Modulation-Doped SiO2 on the Transport Properties of Silicon
10:10-10:30	O47	Andrea Pulici	Ex-situ doping of ultra-thin silicon nanofilms: phosphorus deactivation and mobility enhancement
10:30-11:00	**Coffee break**		
11:00-12:00	**Closing session**		
11:00-11:20	**Announcements**		
11:20:11:40	**Young Scientist Awards**		
11:40-12:00	**Closing: Johannes Heitmann, Daniel Hiller, Franziska Beyer**		
12:20-13:30	**Lunch and departure**		