

## Sunday 24<sup>th</sup> June

15.30 Registration

18:15 **Opening Ceremony**

18.30 **T. Moustakas (PL1)**

*The role of extended defects in the performance of electronic and optoelectronic devices*

19.30 Welcome Reception

## Monday 25th June

8.45 Opening

### **Session 1: Advanced Characterization I**

Chairperson: Theodoros Karakostas

9.00 **A. Rosenauer**, K. Müller, T. Mehrrens, M. Schowalter, J. Zweck, R. Fritz, K. Volz **(I1)**  
*Measurement of Composition and Strain by STEM*

9.40 Ph. Saring, M.A. Falkenberg, **M. Seibt** (O1)  
*TEM analysis of extended defects in multicrystalline silicon using in-situ EBIC/FIB sample preparation*

10.00 **T. Walther**, D.J. Norris, Y. Qiu, A. Dobbie (O2)  
*The Stranski-Krastanow transition in SiGe epitaxy investigated by transmission electron microscopy*

10.20 **C. Trager-Cowan**, G. Naresh-Kumar, B. Hourahine, P. R. Edwards, J. Bruckbauer, R. W. Martin, C. Mauder, A. P. Day, G. England, A. Winkelmann, P. J. Parbrook, A. J. Wilkinson (O3)  
*Applications of electron channelling contrast imaging for characterising nitride semiconductor thin films*

10.40 **Coffee Break**

### **Session 2: Dislocations I**

Chairperson: Hartmut Leipner

11.10 **A. Romanov**, J.S. Speck **(I2)**  
*Modeling of misfit and threading dislocations in semiconductor heterostructures*

11.50 S. Krausel, **B. Hourahine** (O4)  
*New stable dislocation cores in the III-nitrides*

12.10 **M. Reiche**, M. Kittler, M. Krause, H. Übensee (O5)  
*Electrons on Dislocations*

12.30 **M. Albrecht** T. Markurt, T. Schulz, L. Lymperakis, A. Duff, J. Neugebauer, P. Drechsel, P. Stauss **(I3)**  
*Dislocation Mechanisms and Strain Relaxation in the Growth of GaN on Silicon Substrates for Solid State Lighting*

13.10 **Lunch**

### Session 3: Optoelectronic Properties

Chairperson: Horst Strunk

**14.30 K. Edagawa (I4)**

*Photonic Band-Gap and Defect States in a Photonic Amorphous Material*

**15.00** A. Bondarenko, **A.S. Loshachenko**, O. Vyvenko, O. Kononchuk (O6)

*Impact of Hydrogen on Electrical Levels and Luminescence of Dislocation Network at the Interface of Hydrophilically Bonded Silicon Wafers*

**15.20 I. Kolevatov** M. Trushin, O. Vyvenko (O7)

*Energetic spectra of dislocation networks produced by hydrophilic bonding of silicon wafers*

**15.40** Th. Kehagias, J. Kioseoglou, **T. Koukoulia**, A.O. Ajagunna, A. Georgakilas, Ph. Komninou (O8)

*Crystal and Electronic Properties of Polytypes in InN Nanopillars*

**16.00 E. Steinman**, A. Tereshchenko, O. Kononchuk, V. Vdovin (O9)

*Modification of dislocation PL centres due to misfit of bonded Si wafers*

**16.20** Y. Ohno, Y. Tokumoto, **I. Yonenaga**, K. Fujii, T. Yao (O10)

*Optical properties of prismatic dislocations in ZnO*

**16.40**

**Coffee Break**

**17.00**

**Poster Session I - Chairperson: Daniela Cavalcoli**

## Tuesday 26th June

### Session 4: Nanostructures

Chairperson: Malcolm Heggie

**9.00** B. Doisneau, Y. Kotsar, **E. Sarigiannidou**, E. Bellet-Amalric, A. Das, E. Monroy (I5)

*Strain relaxation in GaN/AlGaN superlattices grown by PAMBE for intersubband applications*

**9.40 L. Sahonta**, T. Puchtler, F. Massabuau, S. Bennett, M. Kappers, R. Oliver, C. Humphreys (O11)

*Properties of Trench Defects in  $In_{0.2}Ga_{0.8}N$ /GaN Quantum Well Structures*

**10.00 J. Kioseoglou**, E. Kalesaki, I. Belabbas, J. Chen, G. Nouet, Ph. Komninou, Th. Karakostas (O12)

*Role of Screw Threading Dislocations as Conductive One-Dimensional Nanostructures in AlN*

**10.20** G. Tsiakatouras, **A. Adikimenakis**, K.E. Aretouli, K. Tsagaraki, M. Androulidaki, A. Lotsari, G. Dimitrakopoulos, St. Kennou, A. Georgakilas (O13)

*R-plane sapphire nitridation and its effects on the epitaxy of GaN films and nanopillar*

**10.40**

**Coffee Break**

### Session 5: Interfaces and Grain Boundaries

Chairperson: Tadeusz Wosinski

- 11.10** G. Regula, T. Neisius, R. Daineche, S. Juillaguet, B. Pichaud, M. Lancin (I6)  
*Stacking fault multiplicity in intrinsic and N-doped 4H-SiC*
- 11.50** P. Kaeshammer, T. Sinno (O14)  
*Molecular dynamics simulation of grain boundary-point defect interactions in crystalline silicon*
- 12.10** K. Kutsukake, K. Inoue, Y. Ohno, Y. Tokumoto, N. Usami, K. Nakajima, I. Yonenaga (O15)  
*Characterization of  $\Sigma 5$  grain boundaries artificially formed in Si crystal by CZ, FZ and Bridgman growth methods*
- 12.30** S. Ladas, M. Botzakaki, A. Kerasidou, N. Z. Vouroutzis, N. Xanthopoulos, L. Sygellou, S. Kennou, V. Ioannou-Sougliridis, Th. Speliotis, S. N. Georga, C. A. Krontiras, D. Skarlatos (O16)  
*Study of the ALD-deposited  $Al_2O_3$  / Germanium interface*
- 12.50** Y. Ohno, Y. Tokumoto, I. Yonenaga, R. Taniguchi, S. R. Nishitani (O17)  
*Interaction energy of dopant atoms with stacking faults in Si*

**13.10** **Lunch**

### Session 6: Doping- Irradiation- Implantation I

Chairperson: Ichiro Yonenaga

- 14.30** Y. Ohno, K. Maeda (I7)  
*Revisiting radiation-enhanced dislocation glide with recent studies on 4H-SiC*
- 15.00** J. Boone, P. Young, G. Sheehan, M. I. Heggie, P. Briddon (O18)  
*Extended defects in radiation damaged graphite*
- 15.20** F. Benz, J. Andrés Guerra T., R. Weingärtner, H.P. Strunk (O19)  
*How to Describe Concentration Quenching in Rare Earth Doped Semiconductors*
- 15.40** N. Sobolev (O20)  
*Engineering of Structural Defects and Luminescence Centers in Implanted Silicon Layers*
- 16.00** M. Dumont, G. Regula, M-V Coulet, M-F Beaufort, E. Ntsoenzok, B. Pichaud (O21)  
*Coarsening of nanocavities in  $He^+$  cascade-implanted Si measured by in-situ small angle X-ray scattering*
- 16.20** G. Sheehan, P. Young, J. Boone and M. I. Heggie (O22)  
*Dislocation theory for the mechanics of radiation damage in graphite*

**16.40** **Coffee Break**

**17.00** **Round Table**

*"Current needs and perspectives in the research for Extended Defects in Semiconductors"*

## Wednesday 27th June

### Session 7: Devices and Photovoltaics I

Chairperson: Robert Hull

**9.00 S. Pantelides (PL2)**

*Device Degradation – The Defects that Cause the Trouble*

**10.00 Y. Weng**, K. Ohmer, J. R. Köhler, J.H. Werner, H. P. Strunk (O23)

*Defects in Laser-doped Silicon Solar Cells*

**10.20 J. Nikolai**, N. Burle, B. Pichaud (O24)

*Density, Size and Stoichiometry of Silicon Oxide Precipitates in Thermally Cycled Wafers: Experiments and Modeling*

**10.40**

**Coffee Break**

### Session 8: Devices and Photovoltaics II

Chairperson: Bernard Pichaud

**11.10 P. Pirouz (I8)**

*The Concept of Quasi-Fermi Level and Degradation of SiC Bipolar Devices*

**11.50 S. Beringov**, A. Shkulkov, **Yu. Cherpak**, M. Vlasiuk, T. Vlasenko, I. Buchovska, V.Kveder, M.Khorosheva, A.Bazhenov (O25)

*Multicrystalline Silicon Production for Solar Cells Applications by Continuous Induction Melting in Cold Crucible*

**12.10 M. Trushin**, M. Kittler, W. Seifert, T. Arguirov, A. Klossek, T. Bernhard, W. Gerlach-Blumenthal, A. Hänsel, O. Tober, M. Schwabe(O26)

*Study of n-type Cu-In-S Absorber Layer Grown on Cu-tape Substrate (CISCuT)*

**12.30 I. Bouchama**, K. Djessas, A. Bouloufa, J-L. Gauffier (O27)

*Characterization of high quality Cu(In,Ga)Se<sub>2</sub> thin films prepared by rf-magnetron sputtering*

**12.50 Y. Ohno**, T. Ohsawa, K. Inoue, K. Kutsukake, **Y. Tokumoto**, I. Yonenaga, H. Yoshida, S. Takeda, R. Taniguchi, S. R. Nishitani (O28)

*Formation of BCC-Cu<sub>3</sub>Si in CZ-Si*

**13.10**

**Outing**

## Thursday 28th June

### Session 9: Mechanical I

Chairperson: Oleg Vyvenko

**9.00 J. Rabier**, R. Ghisleni, A. Montagne, J.L. Demenet, J. Michler (I9)

*Silicon Nanopillar Deformation: High Stress Plasticity and the Influence of Doping*

**9.40 J. Guenole**, J.Godet, S. Brochard (O29)

*First Stages of Plasticity Governed by Amorphous Shell in Silicon Nanopillar: an Atomistic Study*

**10.00 M. Vallet**, J. F. Barbot, M.F. Beaufort, J. Grillhé (O30)

*How to modify the orientation of H platelets into semiconductors*

- 10.20** Y. Tokumoto, K. Kutsukake, Y. Ohno, I. Yonenaga (O31)  
*Propagation Behavior of Nanoindentation-induced Dislocations in AlN Films*

**10.40** **Coffee Break**

**Session 10: Advanced Characterization II**

Chairperson: Michael Seibt

- 11.10** D. Cavalcoli, A. Minj, A.Cavallini (I10)  
*Dislocations in III-nitrides investigated by atomic force microscopy*
- 11.50** N. Burle, S. Escoubas, E. Kasper, J. Werner, M. Oehme, K. Lyutovich (O32)  
*X-Ray Imaging and Diffraction Study of Strain Relaxation of MBE grown SiGe layers on Si*
- 12.10** A. Minj, S. Pandey, Ö. Tuna, D. Cavalcoli, B. Fraboni, A. Cavallini, C. Giesen, M. Heuken (O34)  
*Defect investigation in In(Ga,Al)N alloys by Scanning Probe Microscopy*
- 12.30** M. Zervos, A.Othonos, D.Tsokkou (O35)  
*Defect spectroscopy in semiconductor nanowires*

**12.50** **Lunch**

**Session 11: Dislocations II**

Chairperson: Pirouz Pirouz

- 14.30** R. Hull (I11)  
*A New Methodology for Mapping Dislocation Generation in Semiconductor Thin Film Growth and Processing: The Materials Cladogram*
- 15.00** T. Geiger, C. Reimann, M. Hollatz, J. Friedrich (O36)  
*Influencing the as grown dislocation density in directionally solidified multicrystalline Silicon*
- 15.20** M. Naamoun, A.Tallaire, J. Achard, P. Doppelt, A. Gicquel (O37)  
*Reduction of dislocation densities in single crystal diamond grown by plasma CVD*
- 15.40** A. Lotsari, M. Katsikini, Th. Kehagias, J. Arvanitidis, S. Ves, G. Tsiakatouras, K. Tsagaraki, A. Georgakilas, Ph. Komninou, G. P. Dimitrakopoulos (O38)  
*Structural Anisotropic Properties of Nonpolar A-plane GaN on R-plane Sapphire*
- 16.00** O. Voß, V.Kveder, W. Schröter, M. Seibt (O39)  
*Interactions of gold and dislocations in silicon*
- 16.20** L.Lymberakis, M. Albrecht, J. Neugebauer (O40)  
*Excitonic emission from a-type screw dislocations in GaN*
- 16.40** **Coffee Break**
- 17.00** **Poster Session II - Chairperson: Jean-Luc Demenet**

**20.30** **Conference Banquet**

# Friday 29th June

## Session 12: Mechanical II

Chairperson: Jacques Rabier

**9.00 I. Yonenaga (I12)**

*Defects in SiGe Bulk Alloys*

**9.40 V. Kisel, S. A. Erofeeva (O41)**

*Deformation hardening and softening in semiconductors*

**10.00 H. Leipner, I. Ratschinski, W. Fränzel, J. Haerberle, R. Krause-Rehberg, G. Leibiger, F. Habel, W. Mook, J. Michler, L. Thilly (O42)**

*Plastic Deformation and Defect Investigations of GaN Single Crystals*

**10.20 J.-L. Demenet, C. Tromas, D. Eyidi, M. Amer, J. Rabier (O43)**

*Dislocations in 4H- and 3C-SiC Single Crystals in the Brittle Regime*

**10.40**

**Coffee Break**

## Session 13: Nanostructures II

Chairperson: Manfred Reiche

**11.10 M. Pervolaraki, Ph. Komninou, J. Kioseoglou, A. Othonos, G.I. Athanasopoulos, J. Giapintzakis (O44)**

*Si and C nanostructures fabricated by picosecond high repetition rate pulsed laser deposition*

**11.30 J. Teubert, P. Becker, S. van Heeswijk, F. Furtmayr, J. Arbiol, A. Chernikov, S. Chatterjee, M. Eickhoff (O45)**

*Influence of strain, dislocations and adsorbates on the optical properties of GaN nanowire heterostructures*

**11.50 M. Aziz, R.H. Mari, J.F. Felix, M. Henini, R. Pillai, D. Starikov, C. Boney, A. Bensaoula (O46)**

*Deep level transient spectroscopy (DLTS) characterisation of defects in AlGaIn/Si dual-band (UV/IR) detectors grown by MBE*

**12.10 G. Jurczak, T. D. Young, P. Dłużewski (O47)**

*Elastic and Electric Field Effects of a Quantum Dot Nucleated on the Edge of a Threading Dislocation*

**12.30 N. Spyropoulos-Antonakakis, E. Sarantopoulou, Z. Kollia, A. C. Cefalas (O48)**

*The Role of Extended Defects in Charge Accumulation at the Boundaries of AuN and InN Nanodomains*

**12.50**

**Closing Remarks**

**13.10**

**Lunch**

## POSTERS I (MONDAY)

- M.P.1** O. Boyko, Y. Shpotyuk, J. Filipecki  
*Positron Annihilation Lifetime Study of Extended Defects in Semiconductor Glasses and Polymers*
- M.P.2** M. Texier, M. Jublot, B. Pichaud, C. Tromas, J-L Demenet, J. Rabier  
*Study of low-temperature plastic deformation events in brittle materials using nano-indentation and advanced microscopy techniques*
- M.P.3** D. Dompont, I. G. Galben-Sandulache, A. Boulle, D. Chaussende, D. Eyidi, J-L Demenet, M. -F. Beaufort, J. Rabier  
*Stacking Faults in SiC Single Crystals Undergoing the 3C-6H Polytypic Transition*
- M.P.4** A. Mussi, D. Eyidi, A. Shiryaev, J. Rabier  
*TEM Observations of Dislocations in Plastically Deformed Diamond*
- M.P.5** E. Kalesaki, J. Kioseoglou, L. Lymperakis, J. Neugebauer, Th. Karakostas, Ph. Komninou  
*Semipolar {11-22} AlN surfaces: Morphology and electronic properties*
- M.P.6** I. Belabbas, J. Chen, Ph. Komninou, G. Nouet  
*Dissociation of the 60° basal dislocation in wurtzite GaN*
- M.P.7** J. Grym, D. Nohavica, P. Gladkov, E. Hulicius, J. Pangrác, K. Piksová  
*Epitaxial growth of lattice-mismatched materials on porous buffer layers*
- M.P.8** M. Al-Jassim, H. Guthrey, M. Romero, S. Johnston  
*Defect Behavior in Heavily Contaminated Si Solar Cell Materials*
- M.P.9** K. Olender, T. Wosinski, A. Makosa, Z. Tkaczyk, P. Dluzewski, V. Kolkovsky, G. Karczewski  
*Extended deep-level defects in MBE-grown p-type CdTe layers*
- M.P.10** T. Arguirov, O. Vyvenko, M. Oehme, M. Kittler  
*Dislocation luminescence in highly doped degenerate germanium at room temperature*
- M.P.11** V. Kveder, M. Khorosheva, V. Orlov, M. Seibt  
*Observation of vacancy related defects generated by moving dislocations in Si*
- M.P.12** E. Kalesaki, J. Kioseoglou, Ph. Komninou, Th. Karakostas  
*Electronic properties of polar and semipolar AlN/GaN heterostructures*
- M.P.13** J. Kioseoglou, G.P. Dimitrakopoulos, M. Zacharopoulos, Ph. Komninou, Th. Karakostas  
*Misfit relaxation in non-polar (1100) AlN/GaN interfaces*
- M.P.14** X. Kong, S. Albert, A. Bengoechea-Encabo, M. A. Sanchez-Garcia, E. Calleja, A. Trampert  
*Inversion Domains in Ordered GaN Nanorods Grown by Molecular Beam Epitaxy on Ti Masked Templates*
- M.P.15** J. Kioseoglou, T. Koukoulou, Th. Kehagias, F. Furtmayr, M. Eickhoff, H. Kirmse, W. Neumann, Th. Karakostas, Ph. Komninou  
*Interfacial structure of GaN nanowires on treated Al<sub>2</sub>O<sub>3</sub> substrates*
- M.P.16** M. Gholami Mayani, S. F. Thomassen, B. O. Fimland, T. W. Reenaas  
*Influence of large QDs on the defect formation in InAs/GaAs QD bilayers*
- M.P.17** Yu Murao, T. Taishi, K. Kutsukake, Y. Tokumoto, Y. Ohno, I. Yonenaga  
*Impurity-Dependent Dislocation Dynamics in Ge*
- M.P.18** P. Kavouras, A. Lotsari, A. Georgakilas, Ph. Komninou, G. P. Dimitrakopoulos  
*Influence of Defect Characteristics on the Nanoindentation Response of A-plane GaN thin films*
- M.P.19** Y. Tokumoto, T. Taishi, K. Kutsukake, Y. Ohno, I. Yonenaga  
*Morphology and Microstructure of GeAs Islands Formed on Ge(111) Surfaces*
- M.P.20** Ph. Komninou, P. Gladkov, T. Karakostas, J. Pangrác, E. Hulicius  
*Structural and photoluminescent properties of low temperature InAs buffer layer grown by MOVPE on GaAs substrates*

- M.P.21** G. P. Dimitrakopoulos, A. Lotsari, Th. Kehagias, A. Ajagunna, A. Georgakilas, Ph. Komninou  
*Defect Structure and Misfit Accommodation in Semipolar S-plane (1-101) InN Grown on R-plane Sapphire*
- M.P.22** D.M.Artemiev, I.N.Ivukin, A.E.Romanov, V.E.Bougrov, M.A.Odnoblydov  
*Mechanical stress control in GaN films on sapphire substrate via patterned porous structure formation*

## POSTERS II (THURSDAY)

- T.P.1** O. Shpotyuk, R. Golovchak, A. Ingram, V. Boyko, L. Shpotyuk, M. Vakiv  
*Comparative Study of Extended Free-Volume Defects in As- and Ge-Based Glassy Semiconductors: Theoretical Prediction and Experimental Probing with PAL Technique*
- T.P.2** O. Shpotyuk, J. Filipecki, M. Shpotyuk  
*Destruction-Polymerization Transformations as a Source of Radiation-Induced Extended Defects in Chalcogenide Glassy Semiconductors*
- T.P.3** Ch. E. Lekka, P.Patsalas, Ph. Komninou, G.A.Evangelakis  
*Electronic properties and bonding characteristics of AlN:Ag Thin Film Nanocomposites*
- T.P.4** A. Chroneos, L. I. Goulatis, R. W. Grimes, C. Jiang  
*Defect processes of E-centers in  $Si_{1-x}Ge_x$ : Density functional theory calculations*
- T.P.5** M.A. Gialampouki, Ch.E. Lekka  
*Structural and Electronic Properties of Metal Oxide Clusters on Single Wall Carbon Nanotubes by Ab-initio calculations*
- T.P.6** J. Kioseoglou, V. Pontikis, Ph. Komninou, Th. Karakostas  
*Diffusion through AlN/GaN interfaces*
- T.P.7** M-F Beaufort, A. Declémy, J- F Barbot  
*Local strain magnification in Helium implanted 4H-SiC*
- T.P.8** M. Texier, B. Pichaud, M-F Beaufort, J-F Barbot  
*Structure of extended defects and induced crystalline disorder in He-implanted silicon carbide*
- T.P.9** A.V.Bazhenov, V.S. Kulikauskas, V.A. Steinman, V.V. Privezentsev  
*ZnO Nanoparticle Formation in  $Zn^+$  Ion Implanted  $SiO_2/Si$  Structure*
- T.P.10** A. Medvid, R. Rimša, P. Onufrievs, E. Dauksta, G. Mozolevskis, T. Puritis  
*Mechanisms of p-n junction formation in i-Ge crystal by laser radiation*
- T.P.11** E. N. Sgourou, A. Chroneos, C. A. Londos, P. Pochet  
*Impact of Isovalent Doping and Codoping on Oxygen-Vacancy Complexes in Silicon*
- T.P.12** M. Katsikini, F. Pinakidou, E. C. Paloura  
*N- and Ga-K-edge XAFS study of In implanted GaN: Effect of implantation fluence and annealing temperature*
- T.P.13** K. Filintoglou, P. Kavouras, M. Katsikini, J. Arvanitidis, D. Christofilos, S. Ves, E. Wendler, W. Wesch  
*Effect of In implantation and subsequent annealing on the lattice disorder and nano-mechanical properties of GaN*
- T.P.14** D. Skarlatos, M.Bersani, M. Barozzi, N.Z.Vouroutzis, V.Ioannou-Sougleridis  
*Diffusion of implanted Nitrogen in Germanium*
- T.P.15** M-M Soumelidou, J. Kioseoglou, H. Kirmse, Th. Karakostas, Ph. Komninou  
*Structure and Electronic Properties of InGaN/GaN Nanowires using EELS*
- T.P.16** M. Botzakaki, A. Kerasidou, N. Xanthopoulos, D. Skarlatos, S.N. Georga, C.A. Krontiras  
*I-V Characteristics of ALD - Deposited  $Al_2O_3$  on p-type Germanium Substrates*
- T.P.17** A. Siozios, D.C. Koutsogeorgis, E. Lidorikis, G.P. Dimitrakopoulos, Th. Kehagias,



- H. Zoubos, Ph. Komninou, W.M. Cranton, C. Kosmidis, **P. Patsalas**  
*The effect of Ag nanoparticle incorporation to the structural changes of laser annealed AlN films*
- T.P.18** J. Andrés Guerra T., **F. Benz**, R. Weingärtner, H. P. Strunk  
*Concentration Quenching of the Luminescence from several Terbium-doped Matrix Materials*
- T.P.19** **Miao Yang**, Ye Weng, Horst Strunk  
*The role of In in the luminescence of Er from  $Al_xIn_{1-x}N:Er$ -layers*
- T.P.20** H. Kara, K. Şimşek, **N. Kalkan**  
*Conduction Mechanisms in  $Sb_2Te_3$  Thin Films*
- T.P.21** M. Marinova, **A. Mantzari**, A. Andreadou, J. Lorenzzi, G.Ferro, E. Polychroniadis  
*Influence of Ga Doping on the Micro-Structure of 3C-SiC Layers Grown on  $\alpha$ -SiC Substrates by VLS Mechanism*
- T.P.22** **M. Wu**, S.C. Erwin, A. Trampert  
*Determination of clustering in dilute GaN:Gd thin films*
- T.P.23** **A. Adikimenakis**, K. E. Aretouli, K. Tsagaraki, M. Kayambaki, A. Georgakilas  
*Mechanism of Si outdiffusion in plasma assisted molecular beam epitaxy of GaN on Si*

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