

# PROGRAM BIAMS 2010

## Sunday 07/04

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18:00 Get-together party at Dorint Hotel Charlottenhof

## Monday 07/05

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08:50 Opening (O. Breitenstein)

### Cathodoluminescence 1

Session chair: P. Fernandez

O1 09:00 R.W. Martin, P. R. Edwards, K. J. Lethy, C. Liu, P. A. Shields, D. W. E. Allsopp, W. N. Wang (*Invited*)

*Cathodoluminescence of nanostructures*

O2 09:30 P. S. Vergeles, N. M. Shmidt, E. E. Yakimov, E.B. Yakimov  
*Effect of low energy electron irradiation on optical properties of InGaN/GaN light emitting structures*

O3 09:50 P. R. Edwards, K. P. O'Donnell, R. W. Martin  
*Multivariate statistical analysis of cathodoluminescence hyperspectral images*

O4 10:10 E. V. Kolesnikova, A. A. Sitnikova, M. V. Zamoryanskaya  
*Silicon nanoclusters formation in silicon dioxide by high power density electron beam*

10:30-11:00 break

### Cathodoluminescence 2

Session chair: R.W. Martin

O5 11:00 Y. V. Kuznetsova, E. Y. Flegontova, T. B. Popova, M. V. Zamoryanskaya  
*New application of cathodoluminescence and electron probe microanalysis for nitride nanostructures*

O6 11:20 M. R. Phillips, T. Hardy, M. Merklein, T. J. Manning, M. Wintrebert-Fouquet  
*Cathodoluminescence kinetics in GaN:Mg*

O7 11:40 E. Dupuy, N. Pauc, D. Morris, M. Gendry, D. Drouin  
*Carrier capture length of single self-assembled quantum dots : Measurement and simulation by low-voltage SEM-CL and CASINO software*

O8 12:00 C. Frigeri, A. A. Shakhmin, D. A. Vinokurov, M. V. Zamoryanskaya  
*CL and dark field TEM analysis of composition change at interfaces in InGaP/GaAs junctions grown by MOCVD*

O9 12:20 M. V. Zamoryanskaya, Y. V. Kuznesova, A. A. Shakhmin, T. B. Popova, E. Y. Flegontova  
*Cathodoluminescence and electron probe microanalysis of multilayer III-V and II-VI semiconductor nanostructures*

12:40-14:00 lunch

### Cathodoluminescence 3

Session chair: E.B. Yakimov

- O10 14:00** B. Alemán, Y. Ortega, P. Fernandez, J. Piqueras (*Invited*)  
Al (AZO) and In doped ZnO (IZO) elongated nanostructures grown by thermal deposition
- O11 14:30** A. Bondarenko, O. Vyvenko, I. Isakov, O. Kononchuk  
*Correlation between cathodoluminescent and electrical properties of dislocation network in the space charge region of Schottky-diode*
- O12 14:50** K. J. Lethy, P. R. Edwards, C. Liu, W. N. Wang, R. W. Martin  
*Cross-sectional cathodoluminescence of GaN coalesced above a nanocolumn array*
- O13 15:10** B. Chen, H. Matsuhata, T. Sekiguchi, T. Ohyanagi, A. Kinoshita, H. Okumura  
*Comparison of dislocation behavior and luminescent property in Si-face and C-face 4H-SiC*
- 15:30-16:00** break

### Electron beam characterization

Session chair: O. Breitenstein

- O14 16:00** F. Fabbri, F. Rossi, G. Attolini, G. Salviati, S. Iannotta, L. Aversa, R. Verucchi, M. Nardi, N. Fukata, B. Dierre, T. Sekiguchi  
*SiO<sub>2</sub>-SiC Core-shell nanowire: Optical, structural and interface analysis*
- O15 16:20** S. Takasu, H. Sueyoshi, W. Choi, H. Tomokage  
*Electrical characterization of through silicon via (TSV) by scanning electron and laser beams induced current (SELBIC) method*
- O16 16:40** H.-J. Fitting, M. Touzin  
*Fast electron charge injection in dielectrics*
- O17 17:00** K. Kolanek, M. Michling, M. Tallarida, D. Schmeisser  
*In situ investigations of atomic layer deposition of HfO<sub>2</sub> on Si/SiO<sub>2</sub>*
- O18 17:20** K. Kumagai, T. Sekiguchi  
*Secondary electron imaging of titania thin film for surface potential analysis*
- 18:00** Dinner buffet
- 19:30** Guided city tour (max. 50 participants)

## Tuesday 07/06

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### Optical beam methods 1

Session chair: T. Sekiguchi

- O19 09:00** D. Cavalcoli, A. Cavallini (*Invited*)  
*Surface photovoltage spectroscopy of semiconductor nanostructures*
- O20 09:30** R. P. Schmid, T. Arguirov, D. Mankovics, T. Mchedlidze, M. Kittler  
*Novel method for dislocation-related DL-photoluminescence imaging of multicrystalline Si wafers at room temperature*
- O21 09:50** T. Arguirov, C. Wenger, M. Lukosius, T. Mchedlidze, M. Reiche, M. Kittler  
*Silicon based light emitter utilizing tunnel injection of excess carriers via MIS structure*
- O22 10:10** M. Kittler, T. Arguirov, M. Oehme  
*Photoluminescence study of Ge containing crystal defects*

**10:30-11:00** break

### Optical beam methods 2

Session chair: D. Cavalcoli

- O23 11:00** J. Anaya, A. C. Prieto, O. Martínez Sacristán, A. Torres, A. Martín-Martín, J. Jiménez, A. Rodríguez, J. Sangrador, T. Rodríguez  
*Si and Si<sub>x</sub>Ge<sub>1-x</sub> NWs studied by Raman spectroscopy*
- O24 11:20** P. Kaminski, K. Bass, J. M. Wallss, G. Claudio  
*Aluminium nitride as an alternative antireflective coating in silicon solar cells by reactive ion sputtering*
- O25 11:40** P. J. Sellin, G. Prekas, A. Lohstroh, P. Veeramani  
*Modification of the internal electric field in CdZnTe due to X-ray irradiation*
- O26 12:00** M. Kulik, W. Rzodkiewicz, A. Drozdziel, K. Pyszniak  
*Influence of ion beam on optical properties of GaAs. Calculation using the method of fractional-derivative-spectrum*
- O27 12:20** M. Kulik, A. Misiuk, A. Barcz, A. P. Kobzev, J. Bak-Misiuk  
*Influence of thermal annealing under enhanced hydrostatic pressure on Czochralski silicon implanted with H<sub>2</sub><sup>+</sup> and Si<sup>+</sup>*

**12:40-14:00** lunch

## TEM-based characterization 1

Session chair: M. Hýtch

- O28 14:20** H. Kohl (Invited)  
*Chemical mapping in the electron microscope*
- O30 14:50** M. Schade, M. Roczen, B. Berghoff, T. Mchedlidze, H. S. Leipner  
*Analytical TEM investigations of Si-SiO<sub>x</sub> nano-structures*
- O31 15:10** C. Díaz-Guerra, P. Umek, A. Gloter, J. Piqueras  
*Synthesis and cathodoluminescence of undoped and Cr<sup>3+</sup> doped sodium titanate nanotubes and nanoribbons*

**15:30-16:00** break

## TEM-based characterization 2

Session chair: H. Kohl

- O32 16:00** M. Hýtch, F. Houdellier, F. Hübner, N. Cherkashin, S. Reboh, A. Claverie (Invited)  
*Strain Measurements in Electronic Devices by Dark-Field Electron Holography*
- O33 16:30** A. Hähnel, M. Reiche, O. Moutanabbir, H. Blumtritt, H. Geisler, J. Hoentschel, H.-J. Engelmann  
*Nano-beam electron diffraction evaluation of strain behaviour in nanoscale patterned strained silicon-on-insulator*
- O34 16:50** I. Ratschinski, H. S. Leipner, F. Heyroth, W. Fränzel, R. Hammer, M. Jurisch  
*Dislocations and cracks at Vickers indentations in GaN and GaAs bulk crystals*
- O35 17:10** N. Kumar, P. R. Edwards, C. Trager-Cowan, B. Hourahine, A. Vilalta-Clemente, P. Ruterana, Y. A.-R. Dasilva, H. Behmamburg, C. Giesen, M. Heuken, C. Mauder, H. Kalisch, R. H. Jansen, A. P. Day, G. England  
*Structural analysis of InAlN/AlN/GaN heterostructures and m-plane GaN using electron channeling contrast imaging, atomic force microscopy and transmission electron microscopy*

**18:00** Poster session

## Wednesday 07/07

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### Photovoltaic materials and devices 1

Session chair: J. Carstensen

**O36 09:00** M. Rinio, S. Keipert-Colberg, A. Yodyunyong<sup>1</sup>, A. Montesdeoca-Santana, D. Borchert (*Invited*)

*Recombination in ingot cast silicon solar cells measured by light beam induced current topography*

**O37 09:30** T. Trupke (*Invited*)

*Luminescence imaging for inline characterization in silicon photovoltaics*

**O38 10:00** B. Moralejo, V. Hortelano, M. A. González, O. Martínez Sacristán, J. Jiménez, S. Ponce-Alcántara, V. Parra

*Study of the crystal features of mc-Si PV cells by LBIC*

**10:20-11:00** break

### Photovoltaic materials and devices 2

Session chair: T. Trupke

**O39 11:00** K. Dornich, N. Schüler, B. Berger, S. Hahn, J. R. Niklas, B. Gründig-Wendrock (*Invited*)

*Contactless electrical defect characterization in semiconductors by microwave detected PICTS (MD-PICTS) and microwave detected photoconductivity*

**O40 11:30** T. Mchedlidze, J. Schneider, T. Arguirov, M. Kittler

*Characterization of crystalline silicon on glass using photoluminescence*

**O41 11:50** H. Straube, M. Siegloch, H. Tran, A. Gerber, J. Bauer, O. Breitenstein

*Illuminated lock-in thermography at different wavelengths for distinguishing shunts in top and bottom layers of tandem solar cells*

**O42 12:10** J. Carstensen, A. Schütt, G. Popkirov, H. Föll

*CELLO measurement technique for local identification and characterization of various types of solar cell defects*

**12:30-14:00** lunch

**Afternoon:** Excursion to Neuenburg castle (starting at 14:00)

**Evening:** Conference dinner

## Thursday 07/08

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### Multicrystalline and amorphous silicon

*Session chair: M. Rinio*

- O43 09:00** T. Sekiguchi, C. Jun, W. Lee, H. Onodera (*Invited*)  
*Electrical and optical activities of small angle grain boundaries in multicrystalline Si*
- O44 09:30** M. Ratzke, T. Arguirov, T. Mchedlidze, M. Kittler, J. Reif  
*Scanning probe studies of amorphous silicon subjected to laser annealing*
- O45 09:50** N. Tabet, S. Castro-Galnares, T. Buonassisi, A. A. Abdallah, S. A. Said  
*AFM study of the microstructure of amorphous silicon PECVD thin films*
- O46 10:10** F. Dreckschmidt, H. J. Möller  
*Defect luminescence from grain boundaries in multicrystalline silicon*
- 10:30-11:00** break

### Various characterization methods

*Session chair: K. Dornich*

- O47 11:00** F. Güell, J. O. Ossó, A. R. Goñi, A. Cornet, J. R. Morante  
*Wave-guiding effects observed in ZnO nanowires by SNOM*
- O48 11:20:** P. Kaminski, R. Kozłowski, S. Strzelecka, A. Hruban, E. Wegner, M. Piersa  
*High-resolution photoinduced transient spectroscopy of defect centres in semi-insulating GaP*
- O49 11:40** D. Araujo, M.P. Villar, A.J. García, P.N. Volpe, P. Achatz, E. Bustarret  
*Boron doping evaluation in CVD diamond structure by TEM and CL*
- O50 12:00** M. Trushin, O. Vyvenko, T. Mchedlidze, O. Kononchuk, M. Reiche, M. Kittler  
*Characterization of dislocation network produced by silicon direct wafer bonding by means of voltage dependent light beam induced current and capacitance of Schottky diode*
- 12:20** Closing Remarks (O. Breitenstein)
- 12:35-14:00** lunch

### End of conference