

## Extended version

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| <b>Wednesday, December 8<sup>th</sup></b> |                  |
| 16:00                                     | Registration     |
| 16:30                                     | Guided lab tours |

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| <b>Thursday, December 9<sup>th</sup></b> |                                                                                                                                                  |                                                                                                                                           |
| 08:00                                    | Registration                                                                                                                                     |                                                                                                                                           |
| 08:45                                    | Welcome by M. Eickhoff and A. Rosenauer                                                                                                          |                                                                                                                                           |
| 09:00-11:00                              | Plenary lectures, Chair: M. Eickhoff                                                                                                             |                                                                                                                                           |
| 09:00                                    | D. Jena: <i>Nitride Semiconductor/Superconductor Heterostructures by MBE</i>                                                                     |                                                                                                                                           |
| 09:30                                    | T. Bergunde: <i>AZUR III-V Devices – Solar Cells and Electronic Products , related Technologies and Developments</i>                             |                                                                                                                                           |
| 10:00                                    | A. Beyer: <i>Quantitative Characterization of Nanometer-Scaled Electric Fields via Momentum-Resolved STEM</i>                                    |                                                                                                                                           |
| 10:30                                    | D. G. Stroppa: <i>Recent Advances on High Resolution Imaging and Analysis of Semiconductors Materials with Electron Microscopy</i>               |                                                                                                                                           |
| 11:00-11:30                              | Coffee break                                                                                                                                     |                                                                                                                                           |
| 11:30-12:30                              | Session 1 + 2                                                                                                                                    |                                                                                                                                           |
|                                          | Room 1, Chair: A. Rosenauer                                                                                                                      | Room 2, Chair: A. Beyer                                                                                                                   |
|                                          | Session 1: III-Nitride growth and characterization                                                                                               | Session 2: III-Arsenide optical/structural characterization                                                                               |
| 11:30                                    | G. Cardinali:<br><i>Optical characteristics of AlGa<sub>N</sub> SQWs emitting at 275nm grown on epitaxially laterally overgrown AlN/sapphire</i> | B. Yavas-Adin:<br><i>InGaAs Based Resonant Tunnelling Diodes Grown Gas Sources Molecular Beam Epitaxy</i>                                 |
| 11:45                                    | L. Grieger:<br><i>XRD Data Collection Strategies on III-V Materials</i>                                                                          | S. Krüger:<br><i>DGKK Workshop on III/V Epitaxy 2021 - Abstract Template</i>                                                              |
| 12:00                                    | F. Hájek:<br><i>Origin of Zn contamination in GaN-based heterostructures</i>                                                                     | P. Schygulla:<br><i>Determination of the Effective Radiative Recombination Coefficient of AlGaAs for Varying Aluminium Concentrations</i> |
| 12:15                                    | M. Littmann:<br><i>Remote epitaxy of cubic gallium nitride on graphene/3C-SiC substrates</i>                                                     | T. Hepp:<br><i>Interface-Dominated Heterostructures for Long-Wavelength Emission on GaAs Substrates</i>                                   |

**12:30-14:00 Lunch + COVID testing**

**14:00-15:00 Session 3 + 4**

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|       | Room 1, Chair: D. Hommel<br>Session 3: III-Nitride growth and characterization                                                             | Room 2, Chair: M. Jetter<br>Session 4: III-Arsenide growth and characterization                                         |
| 14:00 | F. Hörich:<br><i>Epitaxial growth of AlN on Si (111) by reactive sputtering</i>                                                            | T. Wierzkowski:<br><i>Metamorphically Grown InGaAs High Efficiency Infrared Laser Power Converters on Ge Substrates</i> |
| 14:15 | S. Schmult:<br><i>Suppression of parasitic Conductivity in ultra-pure GaN/AlGaIn Heterostructures by Carbon <math>\delta</math>-Doping</i> | O. Maßmeyer:<br><i>Structural Characterization of III/V Semiconductor Interfaces using Quantitative STEM Methods</i>    |
| 14:30 | F. Bertram:<br><i>Nano-characterization of structural and optical properties of an AlGaIn/GaN HFET</i>                                     | C.-W. Shih:<br><i>Optically induced in-situ strain-tuning of InGaAs quantum dots for nanophotonic devices</i>           |
| 14:45 | P. Vogt:<br><i>Novel routes in molecular-beam epitaxy (MBE): The suboxide MBE (S-MBE) technique</i>                                        | G. P. Nagda:<br><i>Selective Area Growth of III-V Nanowires on High-Index GaAs Substrates</i>                           |

**15:00-16:30 Coffee break + COVID testing**

**16:30-17:30 Session 5 + 6**

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|       | Room 1, Chair: G. Callsen<br>Session 5: III-Nitride optical characterization                                                                    | Room 2: Chair: J. Gutowski<br>Session 6: III-Arsenide growth and characterization                                                           |
| 16:30 | J. C. Mahato:<br><i>Optical and structural properties of GaN/AlGaIn Multi-Quantum Wells using Plasma Assisted MBE</i>                           | C. Heyn:<br><i>Self-assembled Droplet Etching for Quantum Structures with tunable Wave-Functions</i>                                        |
| 16:45 | N. Mitsui:<br><i>Optimization of AlGaIn-based UV LEDs by quantum mechanical simulations using the nextnano software</i>                         | I. Limame:<br><i>MOCVD Growth and optimization of (In,Ga)As quantum dots and distributed Bragg reflector for low threshold micropillars</i> |
| 17:00 | M. Schilling:<br><i>Influence of the MQW growth temperature on the performance characteristics of AlGaIn-based LEDs with emission at 235 nm</i> | K. D. Hanke:<br><i>Reduction of crystal defects in GaP buffer layers grown on Si(100) by MOCVD</i>                                          |
| 17:15 | P. Häuser:<br><i>Improving the AlN transfer resistance by ex situ annealing for GaN on Silicon nanowire devices</i>                             | V. Chejarla:<br><i>Dislocation analysis on different facets in GaAs/Ge/Si vertical heterostructures</i>                                     |

17:45 Guided lab tours + COVID testing

18:30 Guided city tour

20:30 Conference Dinner, Jürgenshof

## Friday, December 10<sup>th</sup>

08:00 Registration

08:30-10:00 Session 7 + 8

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|       | Room 1, Chair: D. As                                                                                                       | Room 2, Chair: A. Strittmatter                                                                                                                        |
|       | Session 7: III-Nitride growth and characterization                                                                         | Session 8: III-Phosphide                                                                                                                              |
| 08:30 | J. Schürmann:<br><i>Nanoscale CL investigation of triple-stacked InGaN/GaN MQW LED</i>                                     | A. Ćutuk:<br><i>Optical properties of InP/AlGaInP QDs for laser emission in the red spectral range</i>                                                |
| 08:45 | T. Grieb:<br><i>Composition Analysis of III/V Semiconductors by Quantitative Scanning Transmission Electron Microscopy</i> | J. Kernchen:<br><i>Structural and optical characterization of an InP quantum dot based semiconductor disk laser structure</i>                         |
| 09:00 | C. Berger:<br><i>Cascaded LEDs with GaN:Mg/GaN:Ge tunnel junctions</i>                                                     | M. Klitzke:<br><i>Development of AlGaInP Sub Cells for Inverted Metamorphic Four Junction Solar Cells grown by MOVPE</i>                              |
| 09:15 | S. Hagedorn:<br><i>MOVPE Growth of AlN on High-Temperature Annealed AlN</i>                                                | J. Strate:<br><i>III/V space grade solar cells grown on 200mm Germanium wafers</i>                                                                    |
| 09:30 | R. Borgmann:<br><i>Sputter Epitaxy of GaN</i>                                                                              | P. Kleinschmidt:<br><i>Atomic Structure of Antiphase Domains on GaP/Si(100):As</i>                                                                    |
| 09:45 | C. Mauder:<br><i>Reduction of parasitic dopant diffusion during MOCVD of RF-HEMT stacks on (111) silicon substrates</i>    | A. Paszuk:<br><i>In situ monitoring of As-P exchange on Ge(100) surfaces in GaAs rich CVD reactors for low-defect III-V multijunction solar cells</i> |

10:00-10:30: Coffee break

10:30-12:00 Session 9 + 10

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|       | Room 1, Chair: D. Jena                                                                                                    | Room 2, Chair: J. Falta                                                                                         |
|       | Session 9: Oxides, 2D materials and others                                                                                | Session 10: III-Arsenide growth and structural characterization                                                 |
| 10:30 | L. Engel:<br><i>Gaussian-shaped micro-cavities for enhanced QD emission in the near-infrared</i>                          | P. Vijayan:<br><i>Towards MOVPE-grown C-Band Emitting InAs Quantum Dots on a Ge-Buffered Si (001) Substrate</i> |
| 10:45 | K. Wein:<br><i>Deposition of metal nano-contacts using focused electron and ion beam: impact on electrical properties</i> | R. Sittig:<br><i>Doping of Metamorphic InGaAs for Electrically Driven QD Emission at 1550nm</i>                 |
| 11:00 | M. Alonso-Orts:<br><i>Properties and application of Ga<sub>2</sub>O<sub>3</sub> tunable optical microcavities</i>         | E. Winter:<br><i>III-V Growth on Porous Ge Substrates</i>                                                       |

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| 11:15                       | J.-O. Krisponeit:<br><i>Strain Engineering of Vanadium Dioxide Thin Films on Various Substrates</i>                                                                                           | J. Koch:<br><i>Multi-probe electrical characterization of freestanding coaxial GaAs-GaN nanowire structures for solar energy conversion</i> |
| 11:30                       | J. Glowatzki:<br><i>MOCVD Growth of III-VI Monolayers</i>                                                                                                                                     | F. Jabeen:<br><i>Metamorphic Buffer Layer Platform for 1550 nm Single-Photon Sources Grown by MBE on (100) GaAs Substrate</i>               |
| 11:45                       | R. Güntel:<br><i>MOCVD Growth of WS<sub>2</sub> on Sapphire and Graphene</i>                                                                                                                  | S. Manna:<br><i>Molecular beam epitaxy grown GaAs quantum dots as sources for single photons and entangled photon pairs</i>                 |
| 12:00-13:30 Lunch           |                                                                                                                                                                                               |                                                                                                                                             |
| 13:30-14:45 Session 11 + 12 |                                                                                                                                                                                               |                                                                                                                                             |
|                             | Room 1, Chair: J. Christen<br>Session 11: III-IV (mixed) and others                                                                                                                           | Room 2, Chair: M. Weyers<br>Session 12: III-IV (mixed) and others                                                                           |
| 13:30                       | T. Schmidt:<br><i>Growth and Structure of Copper Phtalocyanine films on functionalized Si(111) surfaces</i>                                                                                   | T. Müller:<br><i>High-density stacked quantum dots for linear alignment</i>                                                                 |
| 13:45                       | J. Wieben:<br><i>Nitride-based electro-optic modulation in the UV-vis range</i>                                                                                                               | F. Dominec:<br><i>Positron Annihilation Spectroscopy Reveals Vacancy Grouping in MOVPE-grown Gallium Nitride</i>                            |
| 14:00                       | T. Hubáček:<br><i>Investigation of point defects in layers grown by MOVPE</i>                                                                                                                 | Florian F. Krause:<br><i>Electric Field Measurement by Scanning Transmission Electron Diffraction</i>                                       |
| 14:15                       | A. Nair:<br><i>Growth and structural characterization of non-polar a-plane Al<sub>0.7</sub>Sc<sub>0.3</sub>N grown on r-plane Al<sub>2</sub>O<sub>3</sub> using magnetron sputter epitaxy</i> | M. Trippel:<br><i>GaAs-island growth by laser assisted local metalorganic vapor phase epitaxy</i>                                           |
| 14:30                       | G. Schmidt:<br><i>Influence of space-charge region on luminescence in lateral GaN superjunction</i>                                                                                           | S. Graupeter:<br><i>UVC-LEDs grown on HTA-AlN templates with low dislocation densities and high Si doping for strain management</i>         |
| 14:45                       | Farewell by M. Eickhoff & A. Rosenauer                                                                                                                                                        |                                                                                                                                             |
| 15:30                       | Guided lab tours                                                                                                                                                                              |                                                                                                                                             |