

Scientific Programme

Monday June 4, 2007

9:00 – 9:10 Opening ceremony

9:10 – 9:50 Invited talk 01

Growth of InGaN/GaN structures for blue and green emitters, a comparison between polar and non-polar sapphire substrates

M. Kappers,

University of Cambridge, Cambridge, United Kingdom

9:50 – 10:30 Invited talk 02

MOVPE growth optimization for AlGaIn/GaN-HEMTs

H. Hardtdegen

Institute for Bio- and Nanosystems, Research Center Jülich, Germany

10:30 Coffee break

10:50-12:45 Poster Session A: MOVPE growth studies

- A1. Effect of parasitic reactions on AlGaIn MOVPE
A.V.Lobanova *et al.*
- A2. Growth and characterisation of Al_{1-x}Ga_xAs layers
G.Attolini *et al.*
- A3. The use of Arsenic as surfactant in the epitaxy of Germanium
G.Attolini *et al.*
- A4. Influence of growth parameters on structural properties and bandgap of InN epilayers deposited in a showerhead MOVPE system
A.Kadir *et al.*
- A5. Lattice matched AlAs/GaAs superlattice with carbon auto-doping of AlAs by Metalorganic Vapor Phase Epitaxy using conventional precursors.
J.Decobert *et al.*
- A6. Optimization of Nucleation and Buffer Layer Growth for improved GaN Quality and Device Performance
J. Hertkorn *et al.*
- A7. Vapour pressure study of manganocene and tert-butyl lithium organometallics by a static method
J. Pangrác *et al.*
- A8. Influence of precursor access on structure and morphology of AlN layers grown by MOVPE
R. Ferreyra *et al.*

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- A9. Development of computer software support for semiconductor epitaxy
M. Wesolowski *et al.*
- A10. Novel MOVPE-grown 2DEG structures for local anodic oxidation.
R. Kúdela *et al.*
- A11. On the nature of the interlayer at the inverted interface in MOVPE InGaP/GaAs heterojunctions
C. Frigeri *et al.*
- A12. Non polar a-(In)GaN heterostructures
E.F.Zavarin *et al.*
- A13. Mechanisms of magnesium transport and incorporation in p-type doping of GaN by MOVPE
E.V.Yakovlev *et al.*
- A14. MOVPE Growth of High Quality AlN Layers and Effects of Si-doping
S.B.Thapa *et al.*
- A15. Carbon Doping of InAlGaAs and InAlAs grown by MOVPE in Nitrogen
A.Mereuta *et al.*

10:50-12:45 Poster Session B GaN based structures and devices

- B1. AlGaIn/GaN HEMT Grown on 150 mm Silicon (111) Substrates
K. Cheng *et al.*
- B2. LP MOCVD growth optimisation of InAlN/GaN heterostructures on sapphire and SiC substrates for HEMT application
M.-A. Poisson *et al.*
- B3. Optimisation of AlInN/GaN HEMT Structures
L.Rahimzadeh-Khoshroo *et al.*
- B4. Performance of MOSHFETs prepared using MOVPE grown AlGaIn/GaN heterostructure and MOCVD deposited Al₂O₃ gate oxide
D. Gregušová *et al.*
- B5. Strain compensated AlGaIn/GaN/ InGaIn cladding layers in homoepitaxial nitride devices
R. Czernecki *et al.*
- B6. Investigation of InGaAlN heterostructures with 2D electron gas
A.V.Sakharov *et al.*
- B7. MOVPE growth and characterization of InN/GaN quantum well structures
A. Kadir *et al.*

12:45 Lunch

14:00 – 14:40 invited talk 03

MOVPE of Fe-doped GaN below and above the solubility limit: growth, in-situ and ex-situ characterization

A. Bonanni
University of Linz, Austria

14:40- 16:30 Poster Session C Diluted semiconductors

- C1. MOVPE Growth of Ferromagnetic MnAs Nanoclusters Well-Oriented on Lattice-Mismatched Surfaces
S. Hara *et al.*
- C2. APMOVPE growth of undoped GaAsN/ GaAs heterostructures using two organic nitrogen sources
B. Sciana *et al.*
- C3. BP and (BGaIn)P layer structures grown by MOVPE
V. Gottschalch *et al.*
- C4. Manganese incorporation during the MOVPE growth of GaAs
S. Hasenohrl *et al.*
- C5. Study on the intentional incorporation of Cr in the MOVPE of GaN
Y. S. Cho *et al.*

14:40- 16:30 Poster Session D Non- sapphire GaN

- D1. Growth of InN on Si(111) with different buffer layers by MOVPE
S. J. Chang *et al.*
- D2. Interlayer Techniques Applied in GaN Growth on Silicon(111) by MOVPE
K. Cheng *et al.*
- D3. HVPE thick GaN layers grown on ZnO buffer layers
R. Korbutowicz *et al.*
- D4. Heteroepitaxial Growth of GaN on ZnO by MOVPE
S. B. Thapa *et al.*
- D5. Heteroepitaxial growth of crystalline GaN epilayers on LiNbO₃ substrate by MOVPE
S. Gautier *et al.*
- D6. MOVPE growth on Ge substrates for TPV and multijunction solar cell applications
B. Galiana *et al.*
- D7. MOVPE growth of III-N heterostructures for optoelectronic and electronic application on SiC substrates
W. V. Lundin *et al.*
- D8. Effect of atomistic surface structure on the macroscopic surface reaction rate constants for GaAs and InP
M. Sugiyama *et al.*

**16:30 Bus transport to the port,
17:00 – 20:00 Boat trip on the Danube river**

**Tuesday
June 5, 2007**

9:00 – 9:40 Invited talk 04

Mid infra-red quantum cascade laser grown by MOVPE

J. Roberts,
University of Sheffield, United Kingdom

9:40 – 10:20 Invited talk 05

Deep UV light emitting diodes by MOVPE

T. Makimoto
NTT Laboratories, Kanagawa, Japan

10:20 Coffee break

10:50-12:45 Poster Session E: Lasers and detectors

- E1. AllInGaN-based photodetectors with novel MOCVD system
Y.-D. Jhou *et al.*
- E2. High responsivity of GaN p-i-n photodetector grown by MOCVD
J.C.Lin *et al.*
- E3. Tuning the Growth Conditions in Tunnelling Interconnects for Multijunction Solar Cells
I. García *et al.*
- E4. Heterostructure AlGaAs/GaAs p-i-n quantum well solar cell
J.Prazmowska *et al.*
- E5. Growth of InGaN quantum well structures with high In concentration for optoelectronic devices
D.Fuhrmann *et al.*
- E6. Interface investigations of an InGaAs/GaAsSb tunnel junction of a monolithic III-V tandem solar cell
U. Seidel *et al.*
- E7. 10-12° Beam Divergence High Power Laser Heterostructures Grown by MOCVD
A.Marmalyuk *et al.*
- E8. High Power Broadband SLD Heterostructures for 1000÷1100 nm Spectral Range Grown by LP MOCVD
A.Padalitsa *et al.*
- E9. High-temperature and reliability investigations of 660 nm AlGaInP-VCSEL
M.Eichfelder *et al.*
- E10. Nitride based laser diodes on substrates with patterned AlN mask
M. Sarzynski *et al.*
- E11. Laser structures with InGaAs-QWs and n-AlGaAs/p-GaInP cladding layers for emission wavelength beyond 1100 nm
F.Bugge *et al.*

10:50-12:45 Poster Session F II-VI compounds

- F1. Crystallographic Study of Vanadium-doped ZnSe by Metal-Organic Vapor Phase Epitaxy Growth Method
M. Tahashi, *et al.*
- F2. Growth and characterization of ZnSe/ZnMgSSe MQW structures for blue e-beam pumped laser
P. Kuznetsov *et al.*
- F3. Low Pressure MOVPE of CdTe on GaAs Substrate
H. Goto *et al.*
- F4. Growth of Cu(In,Ga)Se₂ by using metal organic chemical vapor deposition with Cu-coated glass substrates
K. J. Chang *et al.*
- F5. Atomic configuration of Sb in ZnSe prepared by MOVPE
T. Ido *et al.*
- F6. The MOCVD of undoped CdO thin films for use as transparent conducting oxides for CdTe/CdS photovoltaic devices
D. A. Lamb *et al.*
- F7. Recent developments in the MOCVD of thin film CdTe solar cells
S. Irvine *et al.*
- F8. MOVPE growth study of ZnO wires and layers
K. Mergenthaler *et al.*
- F9. MOVPE growth and characterization of ZnCdS/ZnSSe QW structures
V.I. Kozlovsky *et al.*

12:45 Lunch

14:00 – 14:40 invited talk 06

Quantitative transmission electron microscopy for the analysis of interfaces and quantum nano-structures

K. Leifer,
Uppsala University, Sweden

14:50 – 15:30 invited talk 07

Growth of InGaN Optoelectronic Structures on 150 mm Sapphire Wafers in a Planetary Reactor

F. Schulte,
Aixtron, Aachen, Germany

15:30 Coffee break

16:00 – 17:40 Poster Session G Characterization (including in-situ)

- G1. Structural and optical analysis of MOVPE-grown InGaP/GaAs superlattices
M. Longo *et al.*
- G2. Optical properties of BInGaAs/GaAs single quantum wells grown by MOVPE
P. Rodriguez *et al.*
- G3. Polarization-angle dependencies of the photoluminescence of ordered GaInP₂ layers grown by MOVPE technique
T. Prutskij *et al.*
- G4. Effects of Mg Doping and Postgrowth Thermal Treatment on Crystal Properties of AlInN Grown by Metalorganic Vapor Phase Epitaxy
Y.K.Su *et al.*
- G5. Characterisation of MOVPE grown InGaN
M. Leyer *et al.*
- G6. Structural and optical properties of ELOG a-plane GaN grown with MOVPE over different stripe directions on r-plane sapphire
C.Netzel *et al.*
- G7. Study of structural and electrical properties of BGa(Al)N alloys grown by MOVPE
S.Gautier *et al.*
- G8. Formation of InAs Quantum Dots on GaAs:Si investigated with in-situ STM
R.Kremzow
- G9. Kinetics of surface adsorption layer on GaAs and InP studied with *in situ* RAS
M. Deura *et al*
- G10. Optical *In Situ* Monitoring During MOCVD Growth of CdS/CdTe PV Structures,
V. Barrioz *et al*
- G11. In-situ Reflectance Anisotropy Spectroscopy of InAs/GaAs quantum dot structures grown by MOVPE
J.Vyskocil *et al*
- G12. Direct measurement of GaN temperatures in epitaxy using bandgap thermometre
J.J. Harris *et al*
- G13. Quantitative analysis of in-situ wafer bowing measurements
F. Brunner *et al*
- G14. Characterization and modelling of AlGaInAs Quantum Well in Selective Area Growth LP-MOVPE
N. Dupuis *et al.*

19:00 – 23:00 Conference dinner

**Wednesday
June 6, 2007**

9:00 – 9:40 Invited talk 08

***"Recent developments in dilute nitride III/V-semiconductors
grown by MOVPE"***

K. Volz,
University of Marburg, Germany :

9:40 – 10:10 Coffee break

10:10-12:45 Poster Session H Special techniques

- H1. No more parasitic regrowth interface in MOVPE and MBE AlGa_N/Ga_N structures regrown on new Fe doped semi-insulating Ga_N templates for HEMT applications
M.Azize *et al.*
- H2. Nitrides Layer Growth on Nanocrystalline Composite Al₂O₃/SiC
R.Paszkievicz *et al.*
- H3. Study of epitaxially overgrown pyramids developed for active tips in scanning force microscopy
J. Šoltýs *et al.*
- H4. Transport properties of high-energy LAO barriers prepared on InGaP/AlGaAs/GaAs heterostructure
J. Martaus *et al.*
- H5. Effect of Different Sputter Power on ITO/p-GaN and their Interface Investigation
C. H. Lan *et al.*
- H6. Gd implanted GaN for spintronics
Z. Sofer *et al.*
- H7. Atomic force nanolithography of InP for site control growth of InAs nanostructures
H. D. Fonseca-Filho *et al.*
- H8. AALD mechanisms in the growth of amorphous Al₂O₃ onto different substrates.
E.Ghiraldelli *et al.*
- H9. Growth of 3-D GaAs heterostructure photonic crystals by variant CVD
M.Bardosova *et al.*

Poster Session I Quantum dots and nanowires

- I1. Controlling the Polarization of 1.55- μ m Columnar InAs Quantum Dots by Their Height and Tensile-strained InGaAsP Barrier Thickness
K. Kawaguchi *et al.*
- I2. Optimal GaAs Nanowires Achieved by a Two-Temperature Growth Procedure
H. Joyce *et al.*

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- I3. InP-quantum dots in $\text{Al}_x\text{Ga}_{1-x}\text{InP}$ on Distributed Bragg Reflectors
W.-M.Schulz *et al.*
- I4. InAs/InGaAlAs Quantum Dot Structures for Infrared Photodetection
P. L. Souza *et al.*
- I5. Formation mechanism and luminescence features of sub- μm pitch pyramidal quantum dot arrays grown on patterned substrates
P. Gallo *et al.*
- I6. VLS-growth of III-As nanowire heterostructures
J. Bauer *et al.*
- I7. Properties of single and double InAs quantum dot structures with strain reducing $\text{In}_x\text{Ga}_{1-x}\text{As}$ matrix and covering layers
A.Hospodkova *et al.*
- I8. Nanodots GaN arrays using MOVPE nano Selective Area Growth
J.Martin *et al.*
- I9. Self-catalyzed growth and properties of InP nanowires
M.Mattila *et al.*
- I10. Au-catalysed MOVPE Growth of GaAs/AlGaAs Core-Shell Nanowires
N. Lovergine *et al.*

12:45 Closing ceremony

13:00 Lunch