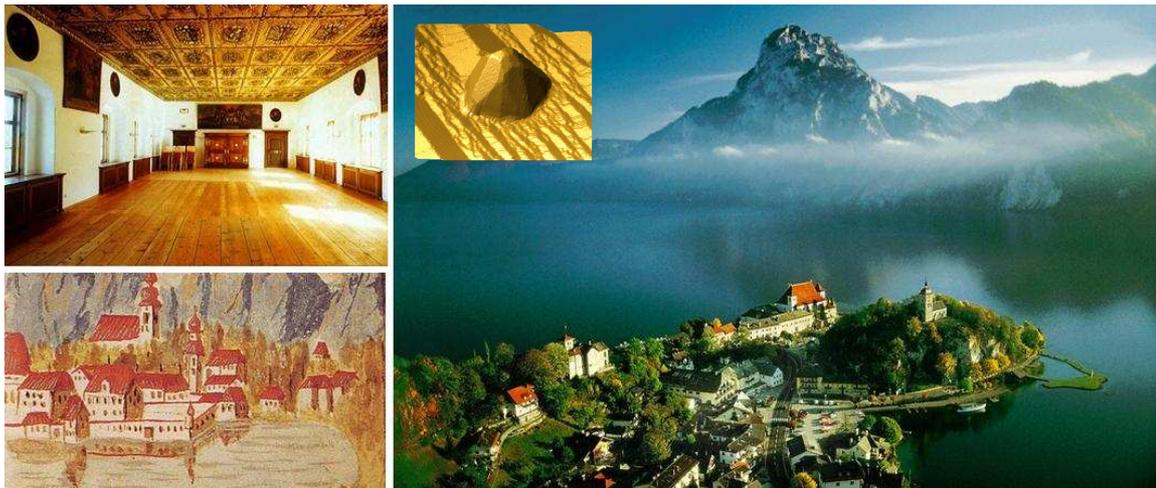


SemiconNano 2011

3rd International Workshop on
**Epitaxial Growth and Fundamental
Properties of Semiconductor
Nanostructures**

September 11 - 16, 2011
Traunkirchen, Austria

PROGRAM



INSTITUT FÜR HALBLEITER- UND
Johannes Kepler Universität Linz, Österreich

HFP
FESTKÖRPERPHYSIK



3rd International Workshop – SemiconNano 2011

Scientific Program



Monday, September 12

Time	Topic	Speaker	Title
8:30	Opening	Springholz, University of Linz	Welcome address
8:45	NWs	Tersoff, IBM Research	Understanding the complex growth of silicon nanowires
9:30		Hofmann, Univ. Cambridge	In-situ observations of catalytic nanowire growth dynamics
10:00		Riel, IBM Research Zürich	Nanowire tunnel FETs – From all-silicon towards heterostructures
10:30	Coffee break		
11:00	QDs	Chyi, Central Univ. Taiwan	1.3 μm InAs quantum dot quasi-L2 photonic crystal nano-cavity light sources
11:30		Claudon, CEA Grenoble	Quantum optics with a quantum dot inserted in a semiconductor photonic nanowire
12:00		Rastelli, IFW Dresden	Strain-tunable quantum dot devices
12:30	Lunch (Hotel Post)		
14:00	SiGe	Wang, University California	Ge-based Spintronics for Nanoelectronics
14:45		Katsaros, IFW-Dresden	Low temperature electronic transport through SiGe self-assembled quantum dots
15:15		Floro, University of Virginia	Growth and Properties of Mn-doped Ge/Si (001) QDs Prepared by MBE co-Deposition
15:30	Coffee break		
16:00	In-situ studies	Tsukamoto, Anan College	Atomistic insights and controls for compound semiconductor growth by STM/BE
16:30		Groiss, University of Linz	Formation of PbTe/CdTe nanocrystals and their coherent interfaces
16:45		Springholz, University of Linz	In situ study of faceting and 1D ripple formation of Ge on vicinal Si (1 1 10)
17:00	Poster Session		
18:00	Dinner (Hotel Post)		
19:30	Patterned growth	Pelucchi, Tyndall Natl. Lab.	Self-limiting formation of seeded nanostructures: A reaction-diffusion model
20:00		Fromherz, University of Linz	Ordering and uniformity of Ge dots on Si substrates
20:30		Zhong, Fudan University	Self-assembled GeSi nanoislands in a hexagonal lattice on patterned Si (001) substrates via nanosphere lithography
20:45		Montalenti, L-NESS Milano	Ge growth on patterned Si substrates: Beyond ordering

Tuesday, September 13

Time	Topic	Speaker	Title
8:45	Photonics	Arakawa, University Tokyo	Light-matter interaction in single quantum dot and 2D/3D photonic crystal nanocavity coupled systems
9:30		Hommel, University Bremen	CdSe and InGaN quantum dots in monolithic microcavities
10:00		Schliwa, TU Berlin	Binding biexcitons in GaN/AlN quantum dots due to large correlation effects
10:15		Zabel, WSI München	Ge quantum dots as active emitters for 2D Si-photonic crystal nanostructures
10:30	Coffee break		
11:00	NWs	Sorba, NEST Pisa	Growth and properties of III-V nanowires
11:30		Shtrikman, Weizmann Inst.	GaAs and GaAs/AlGaAs core/shell nanowires by VLS-MBE
12:00	Lunch (Hotel Post)		
13:30	Excursion I: Hike to Sonnstein or Village tour		
16:15	Coffee break		
16:45	Nitride	Kishino, Sophia U. Tokyo	Epitaxial Growth and Device Applications of GaN-based Nanocolumns
17:30	NWs	Riechert, Paul-Drude Berlin	GaN Nanowires - growth and materials aspects concerning LED applications
18:00	Dinner (Hotel Post)		
19:30	NWs	Lehmann, Lund University	Polytypism in III-V nanowires
20:00		Bakkers, TU Eindhoven	Crystal structure engineering in nanowires
20:30		Mandl, University of Linz	Advances in self-seeded InAs based nanowire growth
20:45		Dimakis, Paul-Drude Berlin	Towards III-As nanowire devices on Si: Growth and doping mechanisms

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Scientific Program



Wednesday, September 14

Time	Topic	Speaker	Title
8:45	Devices	Okada, University of Tokyo	Growth and application of three-dimensional quantum dot superlattice for high-efficiency intermediate band solar cells
9:30		Huffaker, Univ. California	Photonic crystal cavity lasers formed by patterned III-V nanopillars
10:00		Rashid, CRHEA-CNRS Nice	(Al,Ga)N-based photonic crystal nano-cavities for UV emitters integrated on Silicon
10:15		Hochreiner, University Linz	Mid-infrared device applications of epitaxial PbTe quantum dots
10:30	Coffee break		
11:00	Theory	Zhang, High Perf. Comp.	Three-dimensional modeling of coupled morphological and compositional evolution during quantum dot growth
11:30		Kratzer, University Duisburg	Modeling GaAs nanowire growth catalysed by Au nanoparticles
11:45		Usman, Tyndall Natl. Inst.	Atomistic theoretical study of polarization response of InAs quantum dot stacks
12:00		Vastola, High Perf. Comp.	Modeling composition profiles in segregated core-shell and axial nanowires
12:15		Scopece, University Milano	From Stranski-Krastanow seeds to a perfectly faceted wetting layer: Dominant role of surface energy in the evolution of Ge nanoislands on Si (1,1,10)
13:00	Excursion II & Lunch: Boat trip and Gmunden		
18:00	Dinner (Hotel Post)		
19:30	Charact.	Christen, Univ. Magdeburg	Nano-scale characterization of nitrides using S-TEM cathodoluminescence
20:00		Eisele, TU Berlin	Atomic and electronic structure of non-polar N containing semiconductor surfaces
20:30		Hrauda, University of Linz	X-ray diffraction studies on SiGe islands for strain-enhanced applications
20:45		Takahasi, University Hyogo	Crystal growth dynamics studied using in situ x-ray diffraction: Zero-, one- and two-dimensional structures

Thursday, September 15

Time	Topic	Speaker	Title
8:45	Photonics	Shields, Toshiba Cambridge	Semiconductor nanostructures for quantum photonics
9:30		Finley, WSI München	Excited state quantum couplings, dynamics, switching of an artificial molecule
10:00		Keng, CEA Grenoble	CdSe/ZnSe nanowire-quantum dots for room temperature single photon emission
10:30	Coffee break		
11:00	Novel Materials	Feenstra, Carnegie Mellon	Formation of epitaxial graphene on SiC
11:30		Morgenstern, RWTH Aachen	Graphene on the nano scale: Rippling, confinement, local phase transitions
12:00		Ke He, Chinese Academy	Thin films of topological insulators: With or without time-reversal symmetry
12:30	Lunch (Hotel Post)		
14:00	Charact. and Growth	Koenraad, TU Eindhoven	An atomic scale study of the effect of Sb on the growth of III-V quantum dots
14:30		Hjort, Lund University	Surface studies of InAs and InP nanowires
14:45		Zardo, WSI München	Raman spectroscopy on single semiconductor nanowires
15:00		Borgström, Lund University	Growth and characterization of nanowires for photovoltaics
15:30		Hertenberger, WSI München	Self-assembled and site-selective growth of InAs nanowires
15:45	Coffee Break		
16:15	QDs	Millunchick, Michigan Univ.	Atomic surface structure and directed self assembly in compound semiconductors
16:45		Pristovsek, University Berlin	Growth modes of strained InGaAs and InGaN
17:00		Sanguinetti, Univ. Milano	Nanostructure shape control by droplet epitaxy
17:30		Wang, University of Arkansas	Droplet-patterned epitaxial growth: Quantum dot molecules and nanoholes
18:00	Closing		
19:00	Banquet (Hotel Post)		

Friday, September 16

9:00	Excursion III to Hallstatt and Dachstein mountains (Krippenstein and ice caves)		
18:00	Return to Traunkirchen. Alternative: Bus transfer to Salzburg or Linz airports (arrival at about 17:20)		

3rd International Workshop – SemiconNano 2011

Poster Session, Monday September 12, 17:00 – 18:00

Author	Affiliation	Title
Quantum Dots		
P1 Seravalli L.	CNR-IMEM Institute Parma	The 2D-3D growth transition in metamorphic InAs/InGaAs quantum dots
P2 Bietti S.	Università di Milano-Bicocca	Implementation of high quality III-V quantum nanostructures on Si substrates
P3 Solov'ev V	Ioffe Institute	Improvement of room temperature luminescence of InSb/InAs quantum dots
P4 Yamaguchi K.	Univ. Electro-Communications, Chofu	In-plane densification of InAs self-assembled quantum dots
P5 Noda T.	National Inst. Materials Science, Tsukuba	Structural characterization of InAs nanostructures grown on InGaAs/InAlAs by droplet epitaxy
P6 Lenz A.	TU Berlin	Atomic structure of InAs/GaAs submonolayer depositions
P7 Groiss H.	University of Linz	Tensile strained Si quantum dots on Ge(001) by surfactant-mediated SK growth
P8 Sadewasser S.	Helmholtz-Zentrum Berlin	Epitaxially grown CuInSe ₂ and CuGaSe ₂ quantum dots for photovoltaic applications
Growth on patterned substrates		
P9 Chen G.	University of Linz	Fabrication of in-plane, prism-shaped SiGe nanowires on rib-patterned Si (001) subs.
P10 Bollani M.	L-NESS Milano	Ge-rich SiGe nanostructures on pre-patterned substrates
P11 Borisova S.	Forschungszentrum Jülich	Growth of small-period Si/Ge quantum dot crystals
P12 Huang S.	University of Michigan	Influence of surface patterning on InAs/GaAs quantum dot formation
P13 Strittmatter A.	TU Berlin	Self-aligned quantum dots using a buried stressor
Theory		
P14 Usman M.	Tyndall National Institute	Theory of the Electronic Structure of Novel Dilute Bismide Alloys (GaBiP & GaBiAs)
P15 Ishikawa M.	Yokogawa Electric Corp.	First-principles study of nitrogen/oxygen-pair states in III-V semiconductors
Devices		
P16 Eibelhuber M.	University of Linz	Type I interband lasing around 4.3 μm in cw mode near room temperature
P17 Khiar A.	University of Linz	Tunable 3-4 μm single mode VECSELs
P18 Witzan M.	University of Linz	PbTe/CdTe MQW VECSEL emitting in the mid-infrared spectral region
P19 Zederbauer T.	TU Vienna	Growth of InGaAs/GaAsSb heterostructures for MIR and THz QC lasers
P20 Zhang J.	IFW Dresden	Cross-plane thermal conductivity of nanostructured ultra short period Si/Ge superlattices
P21 Chrastina D.	L-NESS Milano	Ge/SiGe superlattices for thermoelectric applications
Spectroscopy		
P22 Yaguchi H.	Saitama University	Biexciton emission from single isoelectronic traps in nitrogen atomic-layer-doped GaAs
P23 Kita T.	Kobe University	Photoluminescence polarization anisotropy in closely stacked InAs/GaAs QDs
P24 Bechtold A.	TU München	Probing ultrafast intra-molecular dynamics in vertically stacked self-assembled quantum dots
P25 Isella G.	L-NESS Milano	Spin polarized photoemission from strained Ge epilayers
Nanowires		
P26 Kratzer M.	Montanuniversität Leoben	Electrical transport of single ZnO nanorods studied by photo-conductive AFM
P27 Rudolph D.	TU München	Catalyst-free MBE growth of (Al)GaAs nanowire heterostructures for optoelectronic quantum devices on Si
P28 Keplinger M.	University of Linz	Investigations of radial and axial heterostructured nanowires using x-ray diffraction
P29 Li Ang	Istituto Nanoscienze-CNR	Structure and optical properties of AlAs-GaAs core-shell nanowires
P30 Wang Jia	TU Eindhoven	Fabrication of InP nanowires arrays on InP (001): How to increase vertical NW yield
P31 Sadowski J.	Lund University	MBE growth and properties GaAs-(Ga,Mn)As core shell nanowires
P32 Hirayama M.	Anan College Tokushima	Single and chain structures of Mn atoms on GaAs(110)
P33 Gamalski A.	University of Cambridge	Non-equilibrium kinetics and solid-liquid interface dynamics in catalytic NW growth
P34 Volobuev V.	National TU Kharkiv	PbTe and Bi nanowires grown by physical vapor deposition technique

Map of Traunkirchen



Program

Program of SemiconNano 2011

Sunday, September 11 :

17:00 – 19:00 Registration, 18:00 – 19:30 Reception, 20:00 – 22:00 Dinner

Monday Morning, September 12

8:30 – 8:45 **Opening** – G. Springholz (*Johannes Kepler Universität Linz*)

Session 1: Nanowires

Chairman: G. Abstreiter

- 8:45 – 9:30 *J. Tersoff (keynote)* and K. S. Schwarz
(*IBM T. J. Watson Research Center, Yorktown Heights, USA*)
Understanding the complex growth of silicon nanowires 18
- 9:30 – 10:00 *S. Hofmann (invited)*
(*University of Cambridge, UK*)
In-situ observations of catalytic nanowire growth dynamics 19
- 10:00 – 10:30 *H. Riel (invited)*, M. Björk, H. Schmid, K. Moselund, C. Bessire, H. Ghoneim, S. Karg,
E. Lörtscher (*IBM Research – Zurich, Switzerland*)
Nanowire tunnel FETs – from all-silicon towards heterostructures 21

10:30 – 11:00 **Coffee break**

Session 2: Quantum Dots

Chairman: Y. Arakawa

- 11:00 – 11:30 *Jen-Inn Chyi (invited)*, Chun-Jung Wang, Pei-Chin Chiu, Wen-Yen Chen, and Tzu-Min Hsu
(*National Central University, Jhongli, Taiwan, R.O.C.*)
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- 11:30 -12:00 *J. Claudon (invited)*, Joël Bleuse, Nitin S. Malik, Mathieu Munsch, Emmanuel Dupuy, Niels Gregersen, Philippe Lalanne, Jean-Michel Gérard,
(*Equipe mixte 'NanoPhysique et SemiConducteurs', CEA/INAC/SP2M, Grenoble, France and Department of Photonics Engineering, DTU Fotonik, Technical University of Denmark, Building 343, DK-2800 Kongens Lyngby, Denmark and Laboratoire Charles Fabry de l'Institut d'Optique, CNRS, Université Paris-Sud, Campus Polytechnique, RD 128, 91127 Palaiseau, France*)
Quantum optics with a quantum dot inserted in a semiconductor photonic nanowire 24
- 12:00 -12:30 *A. Rastelli (invited)*, R. Trotta, E. Zallo, P. Atkinson, E. Magerl, F. Ding,
J. D. Plumhof, S. Kumar, K. Dörr, O. G. Schmidt,
(*Institute for Integrative Nanosciences and Institute for Metallic Materials, IFW Dresden, Germany*)
Strain-tunable quantum dot devices..... 26

12:30 – 14:00 **Lunch** (Hotel Post)

Monday Afternoon and Evening, September 12

Session 3: SiGe Chairman: F. Schäffler

14:00 – 14:45	<u>K. L. Wang</u> (<i>keynote</i>) (California NanoSystems Institute, Los Angeles, USA) Ge-based spintronics for nanoelectronics27
14:45 – 15:15	<u>G. Katsaros</u> (<i>invited</i>), N. Ares, P. Spathis, M. Stoffel, F. Fournel, M. Mongillo, V. Bouchiat, F. Lefloch, A. Rastelli, O. G. Schmidt, S. De Franceschi (IFW-Dresden, Germany and CEA, INAC/SPSMS, Grenoble, France and CEA, LETI, MINATEC, Grenoble, France and Institut Néel, CNRS and Université Joseph Fourier, Grenoble, France) Low temperature electronic transport through SiGe self-assembled quantum dots28
15:15 – 15:30	<u>J. A. Floro</u> , J. Kassim, C. Nolph, P. Reinke, C. Dennis (University of Virginia, Charlottesville, USA and National Institute of Standards and Technology, Gaithersburg, USA) Growth and properties of Mn-doped Ge/Si (001) QDs prepared by MBE co-deposition29
15:30 – 16:00 Coffee break	

Session 4: In-situ studies Chairman: H. Eisele

16:00 – 16:30	<u>Shiro Tsukamoto</u> (<i>invited</i>) (Anan National College of Technology, Tokushima and Institute for Solid State Physics, University of Tokyo, Japan) Atomistic insights and controls for compound semiconductor growth by STMBE30
16:30 -16:45	<u>H. Groiss</u> , G. Hesser, F. Schäffler, R. Leitsmann, F. Bechstedt, N. Zakharov, P. Werner, K. Koike, M. Yano (Johannes Kepler University Linz, Austria, Universität Jena, Germany, Max Planck Institute, Halle, Germany and Osaka Institute of Technology, Japan) Formation of PbTe nanocrystals in PbTe/CdTe heterostructures and their interfaces32
16:45 -17:00	B. Sanduijav, <u>G. Springholz</u> , D. Matei, G. Chen and F. Schäffler, (Johannes Kepler University Linz, Austria) In situ study of faceting and 1D ripple formation of Ge on vicinal Si (1 1 10) substrates34
17:00 – 18:00 Poster Session	
18:00 – 19:30 Dinner (Hotel Post)	

Session 5: Patterned Growth Chairman: A. Rastelli

19:30 – 20:00	<u>E. Pelucchi</u> (<i>invited</i>), V. Dimastrodonato, A. Rudra, K. Leifer, E. Kapon, L. Bethke, P. A. Zestanakis, D. D. Vvedensky (Tyndall National Institute, Cork, Ireland and Ecole Polytechnique Fédéral de Lausanne, Lausanne, Switzerland and Imperial College London , UK) Self-limiting formation of seeded nanostructures during MOVPE: A reaction-diffusion comprehensive model36
20:00 – 20:30	<u>T. Fromherz</u> (<i>invited</i>), F. Hackl, E. Lausecker, M. Brehm, M. Grydlik, H. Groiss, F. Schäffler (Johannes Kepler University Linz, Austria) Ordering and uniformity of Ge dots on Si substrates38
20:30 -20:45	<u>Z. Zhong</u> , Y. Ma, Y. Fan, Z. Jiang (State Key Laboratory, Fudan University, Shanghai, China) Self-assembled GeSi nanoislands in a hexagonal lattice on patterned Si (001) substrates via nanosphere lithography40
20:45 – 21:15	<u>F. Montalenti</u> (<i>invited</i>) (L-NESS and Materials Science Department, Milano, Italy) Ge growth on patterned Si substrates: Beyond ordering42

Tuesday Morning, September 13

Session 6: Photonics

Chairwoman: D. Huffaker

8:45 – 9:30	<u>Y. Arakawa</u> (<i>keynote</i>) (<i>Institute for Nano Quantum Information Electronics, University of Tokyo, Japan</i>) Light-matter interaction in single quantum dot and 2D/3D photonic crystal nanocavity coupled systems 43
9:30 – 10:00	<u>D. Hommel</u> (<i>invited</i>), C. Kruse, S. Figge, Ch. Tessarek, H. Dartsch, A. Rosenauer, T. Kümmell, O. Fedorych, G. Bacher, S. Kiesling, S. Höfling, L. Worschech, A. Forchel (<i>University of Bremen, Germany and CeNIDE, University Duisburg-Essen, Germany and Technische Physik, Würzburg University, Germany</i>) CdSe and InGaN quantum dots in monolithic microcavities 44
10:00 – 10:15	G. Hönig, <u>A. Schliwa</u> , A. Hoffmann, C. Thomsen, D. Bimberg (<i>Institut für Festkörperphysik, Technische Universität Berlin, Germany</i>) Binding biexcitons in GaN/AlN quantum dots due to unusually large correlation effects 45
10:15 – 10:30	<u>T. Zabel</u> , N. Hauke, F. P. Laussy, S. Lichtmannecker, Y. Arakawa, G. Abstreiter, J. J. Finley, D. Bougeard (<i>Walter Schottky Institut, München, Germany, Universität Regensburg, Germany and University of Tokyo, Japan</i>) Ge quantum dots as active emitters for 2D Si-photonic crystal nanostructures 47

10:30 – 11:00 **Coffee break**

Session 7: Nanowires

Chairman: L. Geelhaar

11:00 – 11:30	<u>L. Sorba</u> (<i>invited</i>) (<i>NEST, Istituto Nanoscienze-CNR and Scuola Normale Superiore, Pisa, Italy</i>) Growth and properties of III-V nanowires 49
11:30 -12:00	<u>H. Shtrikman</u> (<i>invited</i>) (<i>Braun Center for Submicron Research, Weizmann Institute of Science, Rehovot, Israel</i>) GaAs and GaAs/AlGaAs core/shell nanowires by VLS-MBE 50

12:00 – 13:30 **Lunch** (Hotel Post)

13:30 – 16:15 **Excursion I**

Alternative 1: Hiking tour to Sonnstein summit; please wear robust hiking shoes !
Alternative 2: Guided tour of the village of Traunkirchen

16:15 – 16:45 **Coffee break**

Tuesday Afternoon and Evening, September 13

Session 8: Nitride Nanowires

Chairman: E. Bakkers

16:45 – 17:30	<u>K. Kishino</u> (<i>keynote</i>), K. Yamano, S. Ishizawa, J. Kamimura, T. Kouno, M. Goto, R. Araki, T. Suzuki, A. Kikuchi, K. Nagashima, and K. Kamiyama (<i>Sophia University and Sophia Nanotechnology Research Center, Tokyo, Japan</i>) Epitaxial growth and emission device applications of GaN-based nanocolumns52
17:30 – 18:00	<u>H. Riechert</u> (<i>invited</i>) (<i>Paul-Drude-Institut für Festkörperelektronik, Berlin, Germany</i>) GaN Nanowires - growth and materials aspects concerning LED applications55
18:00 – 19:30	Dinner (Hotel Post)

Session 9: Nanowires

Chairman: M. T. Borgström

19:30 – 20:00	<u>S. Lehmann</u> (<i>invited</i>), K. A. Dick, J. Johansson, P. Caroff, J. Bolinsson, M. E. Messing, D. Jacobsson, K. Deppert, and L. Samuelson (<i>Lund University, Sweden and Institut d'Électronique, de Microélectronique et de Nanotechnologie, UMR CNRS, Villeneuve d'Ascq, France</i>) Polytypism in III-V nanowires56
20:00 – 20:30	<u>E. P.A.M. Bakkers</u> (<i>invited</i>), R. Algra, M. Hocevar, G. Immink, L.-F. Feiner, W. J.P. van Enckevort, E. Vlieg, L. P. Kouwenhoven, M. A. Verheijen (<i>Eindhoven University of Technology and Delft University of Technology and Philips Research Laboratories, Eindhoven and Radboud University Nijmegen, The Netherlands</i>) Crystal structure engineering in nanowires58
20:30 – 20:45	<u>B. Mandl</u> , J. Stangl, G. Bauer, K. Deppert (<i>Johannes Kepler University Linz, Austria and Lund University, Sweden</i>) Advances in self-seeded InAs based nanowire growth59
20:45 – 21:15	<u>E. Dimakis</u> (<i>invited</i>), M. Ramsteiner, J. Lähnemann, U. Jahn, S. Breuer, M. Hilse, L. Geelhaar, H. Riechert (<i>Paul-Drude-Institut für Festkörperelektronik, Berlin, Germany</i>) Towards III-As nanowire devices on Si: Growth and doping mechanisms60

Wednesday Morning, September 14

Session 10: Devices

Chairman: Jen-Inn Chyi

8:45 – 9:30	<u>Y. Okada</u> (<i>keynote</i>) (<i>Research Center for Advanced Science and Technology, Tokyo, Japan</i>) Growth and application of three-dimensional quantum dot superlattice for high-efficiency intermediate band solar cells 62
9:30 – 10:00	<u>D. L. Huffaker</u> (<i>invited</i>), A. C. Scofield, J. N. Shapiro, S.-H. Kim, A. Scherer, B. L. Liang (<i>California Nano-Systems Institute, University of California, Los Angeles, USA and Kavli Nanoscience Institute, California Institute of Technology, Pasadena, USA</i>) Photonic crystal cavity lasers formed by patterned III-V nanopillars: Bottom-up approach to photonic integration 64
10:00 – 10:15	<u>M. J. Rashid</u> , D. Néel, S. Sergent, M. Mexis, D. Sam-Giao, T. Guillet, C. Brimont, T. Bretagnon, F. Semond, B. Gayral, S. David, X. Checoury, P. Boucaud (<i>CRHEA-CNRS, Valbonne and Université de Nice Sophia Antipolis, Nice and UMR CNRS Université Paris Sud and Université Montpellier 2 and CEA-CNRS Grenoble, France</i>) (Al,Ga)N-based photonic crystal nano-cavities for UV emitters integrated on Silicon 66
10:15 – 10:30	<u>A. Hochreiner</u> , M. Eibelhuber, T. Schwarzl, M. Witzan, H. Groiss, V. Kolkovsky, G. Karczewski, T. Wojtowicz, W. Heiss, G. Springholz (<i>Johannes Kepler University Linz, Austria and Polish Academy of Sciences, Warszawa, Poland</i>) Mid-infrared device applications of epitaxial PbTe quantum dots 67
10:30 – 11:00	Coffee break

Session 11: Theory

Chairman: F. Montalenti

11:00 – 11:30	<u>Y. W. Zhang</u> (<i>invited</i>), J. Y. Guo, J. J. Zhang, and G. Bauer (<i>Institute of High Performance Computing, Singapore and IFW Dresden, Germany and Johannes Kepler Universität Linz, Austria</i>) Three-dimensional modeling of coupled morphological and compositional evolution during quantum dot growth 69
11:30 - 11:45	<u>P. Kratzer</u> , V. Pankoke, S. Sakong (<i>University Duisburg-Essen, Duisburg, Germany</i>) Modeling GaAs nanowire growth catalysed by Au nanoparticles 70
11:45 - 12:00	<u>M. Usman</u> (<i>Tyndall National Institute, Cork, Ireland</i>) Atomistic theoretical study of polarization response of multi-layer InAs QD stacks 72
12:00 – 12:15	<u>G. Vastola</u> , Y. W. Zhang, V. B. Shenoy (<i>Institute of High Performance Computing, Singapore and Brown University, Providence, USA</i>) Modeling composition profiles in segregated core-shell and axial heteroepitaxial nanowires 74
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13:00 – 18:00	Excursion II and Lunch (on boat) (Boat trip on the Traunsee lake and visit to the town of Gmunden)

Wednesday Evening, September 14

18:00 – 19:30 **Dinner** (Hotel Post)

Session 12: Characterization

Chairman: P. Koenraad

- 19:30 – 20:00 J. Christen (*invited*)
(*Institute of Experimental Physics, Otto-von-Guericke-University Magdeburg, Germany*)
Nano-scale characterization of nitrides using helium temperature scanning transmission electron microscopy cathodoluminescence78
- 20:00 - 20:30 H. Eisele (*invited*) (*Institut für Festkörperphysik, Technische Universität Berlin, Germany*)
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- 20:30 – 20:45 N. Hrauda, J. J. Zhang, J. Stangl, E. Wintersberger, T. Etzelstorfer, M. Keplinger, D. Kriegner, V. Holý, V. Jovanović, L. K. Nanver, D. Grützmacher, and G. Bauer (*University of Linz, Austria and IWF Dresden and HASYLAB, Hamburg, Germany and Charles University Prague, Czech Republic and DIMES, TU Delft, The Netherlands and Forschungszentrum Jülich, Germany*)
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- 20:45 – 21:00 M. Takahashi, W. Hu, M. Kozu, T. Sasaki, Y. Ohshita, H. Suzuki (*Japan Atomic Energy Agency and University of Hyogo and Toyota Technol. Inst., Nagoya and University of Miyazaki, Japan*)
Crystal growth dynamics studied using in situ x-ray diffraction: Zero-, one- and two-dimensional structures84
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Thursday Morning, September 15

Session 13: Photonics

Chairman: D. Hommel

- 8:45 – 9:30 A. J. Shields (keynote), R. M. Stevenson, C. L. Salter, A. J. Bennett, R. B. Patel, M. A. Pooley, M. B. Ward, A. Boyer de la Giroday, N. Skold, I. Farrer, C. A. Nicoll and D. A. Ritchie (Toshiba Research Europe Limited, Cambridge, UK and Cavendish Laboratory, Cambridge, UK)
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- 9:30 – 10:00 J. Finley (invited), K. Müller, G. Reithmair, A. Bechtold, H. J. Krenner, E. C. Clark, G. Abstreiter, M. Betz, (Walter Schottky Institute, München, Germany, Lehrstuhl Experimentalphysik 1, Universität Augsburg, Germany, and Experimentelle Physik 2, TU Dortmund, Germany)
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- 10:00 – 10:30 K. Kheng (invited), S. Bounouar, M. Elouneq-Jamroz, G. Sallen, M. Den Hertog, C. Morchutt, E. Bellet-Amalric, R. André, C. Bougerol, J. P. Poizat, S. Tatarenko (Nanophysics and Semiconductors Group, INAC and Institut NEEL, University Joseph Fourier Grenoble, France)
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10:30 – 11:00 **Coffee break**

Session 14: Novel materials

Chairman: G. Bauer

- 11:00 – 11:30 R. M. Feenstra (invited), Guowei He, N. Srivastava, Luxmi (Department of Physics, Carnegie Mellon University, Pittsburgh, USA)
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- 11:30 – 12:00 M. Morgenstern (invited) (RWTH Aachen, Germany)
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- 12:00 – 12:30 Ke He (invited), Li-Li Wang, Xu-Cun Ma, Xi Chen, Yayu Wang, and Qi-Kun Xue (Institute of Physics, Chinese Academy of Sciences, Beijing and State Key Laboratory for Low-Dimensional Quantum Physics, Tsinghua University, Beijing, China)
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12:30 – 14:00 **Lunch** (Hotel Post)

Thursday Afternoon, September 15

Session 15: Characterization & Growth

Chairman: J. Floro

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14:30 – 14:45	<u>M. Hjort</u> , R. Timm, J. Wallentin, B. Mandl, A. A. Zakharov, J. N. Andersen, E. Lundgren, L. Samuelson, M. T. Borgström, A. Mikkelsen (Lund University, Sweden and Johannes Kepler University Linz, Austria) Surface studies of InAs and InP nanowires95
14:45 – 15:00	<u>I. Zardo</u> , S. Yazji, S. Funk, M. Soini, N. Hörmann, G. Abstreiter (Walter Schottky Institut, Technische Universität München, Germany) Raman spectroscopy on single semiconductor nanowires97
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15:30 – 15:45	<u>S. Hertenberger</u> , D. Rudolph, S. Bolte, M. Döblinger, D. Spirkoska, M. Bichler, J. J. Finley, G. Abstreiter, and G. Koblmüller (Walter Schottky Institut and Ludwig-Maximilians-Universität, München, and Technische Universität München, Germany) Self-assembled and site-selective growth of InAs nanowires100
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Session 16: Quantum dots

Chairman: S. Tsukamoto

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17:30 – 18:00	<u>Z. Wang</u> (<i>invited</i>) (University Arkansas, USA) Droplet-patterned epitaxial growth: Quantum dot molecules and nanoholes
18:00 – 18:30	Closing – G. Springholz (Johannes Kepler Universität Linz)
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19:00 – 22:00	Banquet (Hotel Post)

Friday, September 16

9:00 – 18:00

Excursion III:

Hallstatt (world cultural heritage village) and **Dachstein mountain massif** (Krippenstein summit and gigantic ice caves)

Excursion III - Program

Hallstatt and the Krippenstein mountain

Friday, September 16, 9:00 – 18:00

Planned Program: *(Program may be altered according to weather conditions)*

- **Hallstatt:** Guided tour of the world cultural heritage village of Hallstatt.
- **Krippenstein summit:** Cable car ride up to the summit of the Krippenstein mountain (altitude: 2100 m) with a spectacular viewing platform and a view of the Dachstein glacier in the south.
- **Giant Ice Caves:** Famous ice caves in the Dachstein mountain at an altitude of 1400 m which can be reached by cable car and a short walk (20 min.). Please bring warm clothes and robust shoes for the guided visit (duration about 50 min.). Temperatures in the ice cave rarely exceed freezing point.



Poster Session

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17:00 – 18:00

Poster Session, Monday September 12, 17:00 – 18:00

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