

## Talks and Conference Contributions

- [1] A. Al-Samaneh, S. Renz, A. Strodl, W. Schwarz, D. Wahl, and R. Michalzik, "Polarization-stable single-mode VCSELs for Cs-based MEMS atomic clock applications", *SPIE Photonics Europe, Conf. on Semiconductor Lasers and Laser Dynamics IV*, Brussels, Belgium, Apr. 2010.
- [2] A. Al-Samaneh, S. Renz, D. Wahl, and R. Michalzik, "Small-signal analysis and polarization stability performance of single-mode VCSELs for MEMS atomic clock applications", *Sixth Joint Symposium on Opto- and Microelectronic Devices and Circuits, SODC 2010*, Berlin, Germany, Oct. 2010.
- [3] J. Däubler, S. Schwaiger, I. Tischer, R.A.R. Leute, T. Wunderer, K. Thonke, and F. Scholz, "GaN auf vorstrukturiertem Saphir: Wachstum, Charakterisierung und Lumineszenz von InGaN QWs", *25th DGKK Workshop "Epitaxie von III/V-Halbleitern"*, Aachen, Germany, Dec. 2010.
- [4] M. Fikry, M. Madel, I. Tischer, K. Thonke, and F. Scholz, "Epitaxial growth of Coaxial GaN/InGaN/GaN hetero-nanotubes", *International Symposium on Growth of III-Nitrides, ISGN2010*, Montpellier, France, July 2010.
- [5] M. Fikry, M. Madel, I. Tischer, Y. Men, K. Thonke, and F. Scholz, "Epitaxial Growth and Position Control of Coaxial GaN/ZnO Heterostructures and GaN/InGaN/GaN Hetero-Nanotubes", *International Workshop on Nitride Semiconductors, IWN2010*, Tampa, Florida, USA, Sept. 2010.
- [6] M. Fikry, M. Madel, I. Tischer, K. Thonke, and F. Scholz, "Epitaxial GaN and InGaN around ZnO nanopillars", *5th Nanowire Growth Workshop, NWG 2010*, Rome, Italy, Nov. 2010.
- [7] K. Forghani, M. Klein, F. Lipski, S. Schwaiger, J. Hertkorn, F. Scholz, B. Neuschl, K. Fujan, I. Tischer, M. Feneberg, K. Thonke, O. Klein, U. Kaiser, T. Passow, and R. Gutt, "High quality AlGa<sub>N</sub> epilayers grown directly on sapphire without GaN buffer layer", *15th International Conference on Metalorganic Vapor Phase Epitaxy, ICMOVPE-XV*, Lake Tahoe, NV, USA, May 2010.
- [8] K. Forghani, M. Klein, F. Liski, S. Schwaiger, J. Hertkorn, F. Scholz, B. Neuschl, K. Fujan, I. Tischer, M. Feneberg, K. Thonke, O. Klein, U. Kaiser, T. Passow, and R. Gutt, "High quality AlGa<sub>N</sub> epilayers grown directly on sapphire without GaN buffer layer", *Palo Alto Research Center*, Palo Alto, CA, USA, June 2010.
- [9] K. Forghani, O. Klein, M. Feneberg, M. Klein, B. Neuschl, F. Lipski, S. Schwaiger, M. Gharavipour, K. Thonke, U. Kaiser, and F. Scholz, "In-situ deposited SiN nanomask for crystal quality improvement in AlGa<sub>N</sub>", *International Workshop on Nitride Semiconductors, IWN2010*, Tampa, Florida, USA, Sept. 2010.
- [10] A. Gadallah, A. Bergmann, and R. Michalzik, "High-power single-higher-order-mode VCSELs for optical particle manipulation", poster at *SPIE Photonics Europe, Conf. on Semiconductor Lasers and Laser Dynamics IV*, Brussels, Belgium, Apr. 2010.

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- [11] A. Gadallah and R. Michalzik, “Densely-packed 2-D matrix-addressable vertical-cavity surface-emitting laser arrays”, *The 4th International Conf. on Modern Trends in Physics Research, MTPR-010*, Sharm El Sheikh, Egypt, Dec. 2010.
- [12] A. Kern, D. Wahl, M.T. Haidar, B. Liu, W. Schwarz, R. Rösch, and R. Michalzik, “Monolithic integration of VCSELs and PIN photodiodes for bidirectional data communication over standard multimode fibers”, *SPIE Photonics Europe, Conf. on Semiconductor Lasers and Laser Dynamics IV*, Brussels, Belgium, Apr. 2010.
- [13] R.A.R. Leute, T. Wunderer, F. Lipski, F. Scholz, J. Biskupek, A. Chuvilin, L. Lechner, U. Kaiser, M. Brendel, A.D. Dräger, and A. Hangleiter, “GaN-based laser structure integrating three-dimensional semipolar InGaN QWs within a planar c-oriented waveguide”, *E-MRS 2010 Fall Meeting*, Warsaw, Poland, Sept. 2010.
- [14] R.A.R. Leute, T. Wunderer, J. Wang, S. Schwaiger, F. Lipski, K. Forghani, F. Scholz, A. Chuvilin, J. Biskupek, L. Lechner U. Kaiser, D. Dräger, M. Brendel, and A. Hangleiter “GaN-based laser structure using 3D semipolar InGaN quantum wells embedded in planar AlGaIn cladding layers”, *PolarCoN Summer School*, Ulm University Conference Centre Schloss Reisingen, Günzburg, Germany, Oct. 2010.
- [15] R.A.R. Leute, K. Forghani, F. Lipski, S. Schwaiger and F. Scholz, “Dreidimensionale AlGaIn-Strukturen als Wellenleiter-Mantel für semipolare Laserstrukturen”, *25th DGKK Workshop “Epitaxie von III/V-Halbleitern”*, Aachen, Germany, Dec. 2010.
- [16] F. Lipski, H. Wu, S. Schwaiger, L. Kirste, E. Richter, and F. Scholz, “Semi-insulating GaN by Fe-Doping in Hydride Vapor Phase Epitaxy Using a Solid Source”, *International Symposium on Growth of III-Nitrides, ISGN2010*, Montpellier, France, July 2010.
- [17] R. Michalzik, A. Kern, M. Stach, F. Rinaldi, and D. Wahl, “True bidirectional optical interconnects over multimode fiber” (invited), *SPIE Photonics West 2010, Conf. on Optoelectronic Interconnects and Component Integration X*, San Francisco, CA, USA, Jan. 2010.
- [18] R. Michalzik, “High-volume VCSEL applications: present and future” (invited), *Global COE PICE International Symposium – Photonics Breakthrough toward Next-generation ICT*, Tokyo, Japan, March 2010.
- [19] R. Michalzik, A. Al-Samaneh, and D. Wahl, “VCSELs for atomic clocks”, *VCSEL Day 2010*, Torino, Italy, May 2010.
- [20] R. Michalzik, A. Kern, M. Stach, W. Schwarz, M.T. Haidar, R. Rösch, F. Rinaldi, and D. Wahl, “VCSELs monolithically integrated with photodiodes: good for bidirectional data transmission over multimode fiber?”, *European Semiconductor Laser Workshop*, Pavia, Italy, Sept. 2010.

- [21] F. Scholz, T. Wunderer, M. Feneberg, K. Thonke, A. Chuvilin, U. Kaiser, S. Metzner, F. Bertram, and J. Christen, "AlGaInN heterostructures on semipolar facets of selectively grown GaN stripes for optoelectronic applications" (invited), *SPIE Photonics West*, San Francisco, CA, USA, Jan. 2010.
- [22] F. Scholz, T. Wunderer, M. Feneberg, K. Thonke, A. Chuvilin, U. Kaiser, S. Metzner, F. Bertram, J. Christen, M. Brendel, D. Dräger, and A. Hangleiter, "GaInN-based LED structures on selectively grown semi-polar crystal facets" (invited), *2010 March Meeting of the American Physical Society*, Portland, OR, USA, March 2010.
- [23] F. Scholz, T. Wunderer, M. Feneberg, K. Thonke, A. Chuvilin, J. Biskupek, U. Kaiser, S. Metzner, F. Bertram, J. Christen, M. Brendel, D. Dräger, and A. Hangleiter, "Patterned growth of GaN-based LED structures" (invited), *10th International Workshop on Expert Evaluation and Control of Compound Semiconductor Materials and Technologies, EXMATEC 2010*, Seeheim-Jugenheim, Germany, March 2010.
- [24] F. Scholz, F. Lipski, S. Schwaiger, and T. Wunderer, "Hydride vapor phase epitaxy of thick polar and non-polar GaN layers" (invited), *The IX International Conference of Polish Crystal Growth Soc., ICPSCG-9*, Gdansk, Poland, May 2010.
- [25] F. Scholz, T. Wunderer, M. Feneberg, K. Thonke, A. Chuvilin, and U. Kaiser, "Investigations about local GaInN quantum well properties grown on triangular GaN stripes", *International Workshop on Nitride Semiconductors, IWN2010*, Tampa, Florida, USA, Sept. 2010.
- [26] F. Scholz, "Licht aus dem Kristall: Leuchtquellen mit höchster Effizienz" (invited), *Ulmer 3-Generationen-Uni*, Ulm University, Ulm, Germany, Nov. 2010.
- [27] S. Schwaiger, I. Argut, T. Wunderer, F. Lipski, R. Rösch, and F. Scholz, "Growth of planar semipolar GaN via epitaxial lateral overgrowth on pre-patterned sapphire substrates", *DPG Frühjahrstagung*, Regensburg, Germany, March 2010.
- [28] S. Schwaiger, T. Wunderer, I. Argut, F. Lipski, R. Rösch, and F. Scholz, "Planar semipolar  $\{11\bar{2}2\}$  and  $\{10\bar{1}1\}$  GaN on pre-patterned sapphire substrates", *Neue Materialien - Halbleiter*, Otto-von-Guericke Universität Magdeburg, Magdeburg, Germany, Apr. 2010.
- [29] S. Schwaiger, I. Argut, T. Wunderer, F. Lipski, R. Rösch, F. Scholz, S. Metzner, F. Bertram, and J. Christen, "Growth of planar semipolar GaN on pre-patterned sapphire substrates", *15th International Conference on Metalorganic Vapor Phase Epitaxy, ICMOVPE-XV*, Lake Tahoe, NV, USA, May 2010.
- [30] S. Schwaiger, I. Argut, T. Wunderer, F. Lipski, R. Rösch, F. Scholz, S. Metzner, F. Bertram, J. Christen, K. Fujan, M. Feneberg, and K. Thonke, "Semipolar GaN on pre-patterned sapphire substrates: growth and characterization", *Palo Alto Research Center*, Palo Alto, CA, USA, June 2010.

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- [31] S. Schwaiger, J. Däubler, and F. Scholz, “Semipolar GaN on structured sapphire: coalescence behaviour and luminescence from InGaN quantum wells”, *PolarCon Summer School*, Ulm University Conference Centre Schloss Reisensburg, Günzburg, Germany, Oct. 2010.
- [32] S. Schwaiger, S. Metzner, J. Thalmair, S. Neugebauer, T. Wunderer, J. Däubler, F. Bertram, J. Zweck, J. Christen, and F. Scholz, “Koaleszenz von {11-22} orientiertem GaN auf strukturierten r-orientierten Saphir-Substraten”, *25th DGKK Workshop “Epitaxie von III/V-Halbleitern”*, Aachen, Germany, Dec. 2010.
- [33] D. Wahl, A. Kern, M. Stach, F. Rinaldi, R. Rösch, and R. Michalzik, “VCSELs with monolithically integrated photodiodes for single-fiber bidirectional data transmission in the Gbit/s range”, *16th Int. Conf. on Molecular Beam Epitaxy, MBE 2010*, Berlin, Germany, Aug. 2010.
- [34] B. Westenfelder, J.C. Meyer, J. Biskupek, G. Algara-Siller, C.E. Krill III, F. Scholz, and U. Kaiser, “In situ ultra-HRTEM electrical investigations of graphene”, poster at *24th International Winterschool on: Electronic Properties of Novel Materials, IWEPM 2010*, Kirchberg, Austria, March 2010.
- [35] T. Wunderer, F. Lipski, S. Schwaiger, F. Scholz, M. Feneberg, K. Thonke, A. Chuvilin, U. Kaiser, S. Metzner, F. Bertram, J. Christen, C. Vierheilg, and U. Schwarz, “Three-dimensional GaN for semipolar light emitters” (invited), *DPG Frühjahrstagung*, Regensburg, Germany, March 2010.
- [36] T. Wunderer, R.A.R. Leute, J. Wang, S. Schwaiger, F. Lipski, K. Forghani, F. Scholz, J. Biskupek, A. Chuvilin, U. Kaiser, M. Brendel, D. Dräger, and A. Hangleiter, “GaN-based laser structure with semipolar InGaN QWs realized by selective area epitaxy”, *DPG Frühjahrstagung*, Regensburg, Germany, March 2010.
- [37] T. Wunderer, J. Biskupek, A. Chuvilin, U. Kaiser, Y. Men, J. Wang, F. Lipski, S. Schwaiger, K. Forghani, and F. Scholz, “GaN-based laser structure using 3D semipolar InGaN quantum wells embedded in planar AlGaIn cladding layers”, *15th International Conference on Metalorganic Vapor Phase Epitaxy, ICMOVPE-XV*, Lake Tahoe, NV, USA, May 2010.
- [38] L. Bimboes, F. Gruet, C. Affolderbach, R. Matthey, G. Mileti, A. Al-Samaneh, D. Wahl, and R. Michalzik, “Spectral characterization of 894 nm VCSELs for MEMS atomic clocks”, *Atelier à Arc-et-Senans, Les microtechniques dans le quotidien*, one-page abstract and poster. Saline Royale d’Arc-et-Senans, France, Sept. 2010.
- [39] C. Borgentun, J. Bengtsson, A. Larsson, F. Demaria, A. Hein, and P. Unger, “Optically pumped high-power semiconductor disk laser with gain element engineered for wide tunability”, *SPIE Photonics Europe, Conf. on Semiconductor Lasers and Laser Dynamics IV*, Brussels, Belgium, Apr. 2010.
- [40] H. Bremers, A. Schwiegel, H. Jönen, U. Rossow, M. Brendel, A.D. Dräger, A. Hangleiter, S. Schwaiger, and F. Scholz, “Identical indium incorporation in polar

and nonpolar GaInN quantum wells: a high resolution X-ray diffraction study”, *International Workshop on Nitride Semiconductors, IWN2010*, Tampa, Florida, USA, Sept. 2010.

- [41] J. Christen, S. Metzner, F. Bertram, T. Wunderer, F. Lipski, S. Schwaiger, and F. Scholz, “Spatio-time-resolved cathodoluminescence spectroscopy imaging microscopic correlation of real structure and recombination kinetics in InGaN quantum wells” (invited), *SPIE Photonics West*, San Francisco, CA, USA, Jan. 2010.
- [42] J. Christen, F. Bertram, S. Metzner, T. Wunderer, F. Lipski, S. Schwaiger, and F. Scholz, “Spatio-time-resolved cathodoluminescence spectroscopy imaging: microscopic recombination kinetics in semi-polar InGaN quantum wells” (invited), *M&M*, Portland, OR, USA, Aug. 2010.
- [43] J. Christen, F. Bertram, S. Metzner, T. Wunderer, F. Lipski, S. Schwaiger, and F. Scholz, “Microscopic energy relaxation in semipolar InGaN quantum wells via real space transfer-directly imaged by spatio-time-resolved cathodoluminescence spectroscopy”, *International Workshop on Nitride Semiconductors, IWN2010*, Tampa, Florida, USA, Sept. 2010.
- [44] K.J. Fujian, M. Feneberg, B. Neuschl, I. Tischer, K. Thonke, S. Schwaiger, I. Izadi, F. Scholz, L. Lechner, J. Biskupek, and U. Kaiser, “The dominant role of pits in the emission spectra of GaInN quantum wells grown on non-polar a-plane GaN”, *International Workshop on Nitride Semiconductors, IWN2010*, Tampa, Florida, USA, Sept. 2010.
- [45] H. Jönen, H. Bremers, U. Rossow, A. Schwiegel, M. Brendel, A.D. Dräger, A. Hangleiter, S. Schwaiger, and F. Scholz, “Comparable indium incorporation in polar and nonpolar GaInN quantum wells for longwavelength lasers”, *E-MRS Fall Meeting*, Warsaw, Poland, Sept. 2010.
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- [47] C. Karbaum, F. Bertram, S. Metzner, J. Christen, T. Wunderer, and F. Scholz, “Spectrally resolved cathodoluminescence microscopy of an InGaN SQW on hexagonally inverted GaN pyramids”, *DPG Frühjahrstagung*, Regensburg, Germany, March 2010.
- [48] M. Kunzer, R. Gutt, L. Kirste, T. Passow, K. Forghani, F. Scholz, K. Köhler, and J. Wagner, “Improved quantum efficiency of 350 nm LEDs grown on low dislocation density AlGaIn buffer layers”, *International Workshop on Nitride Semiconductors, IWN2010*, Tampa, Florida, USA, Sept. 2010.

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- [49] S. Metzner, F. Bertram, J. Christen, T. Wunderer, F. Lipski, S. Schwaiger, and F. Scholz, “Microscopic correlation of real structure and recombination kinetics in semipolar InGaN SQW using spatio-time-resolved cathodoluminescence”, *DPG Frühjahrstagung*, Regensburg, Germany, March 2010.
- [50] S. Metzner, F. Bertram, T. Hempel, J. Christen, T. Wunderer, F. Lipski, S. Schwaiger, and F. Scholz, “Spatio-time resolved cathodoluminescence microscopy of semipolar InGaN SQW on inverse GaN pyramids: correlation of real structure and recombination kinetics”, *15th International Conference on Metalorganic Vapor Phase Epitaxy, ICMOVPE-XV*, Lake Tahoe, NV, USA, May 2010.
- [51] S. Metzner, S. Neugebauer, F. Bertram, T. Hempel, J. Christen, S. Schwaiger, I. Argut, T. Wunderer, F. Lipski, R. Rösch, and F. Scholz, “Microscopic investigation of planar semipolar GaN directly grown on pre-patterned sapphire substrates by cathodoluminescence”, poster at *International Workshop on Nitride Semiconductors, IWN2010*, Tampa, Florida, USA, Sept. 2010.
- [52] J. Meyer, S. Kurasch, G. Algara-Siller, U. Kaiser, B. Westenfelder, F. Scholz, and C. Krill, “Towards microscopy on graphene”, *Graphene Seminar Fraunhofer IPA*, Stuttgart, Germany, June 2010.
- [53] S. Neugebauer, S. Metzner, F. Bertram, T. Hempel, J. Christen, S. Schwaiger, J. Däubler, and F. Scholz, “Highly spatially and spectrally resolved cathodoluminescence of planar semipolar GaN grown on pre-patterned sapphire substrate”, *25th DGKK Workshop “Epitaxie von III/V-Halbleitern”*, Aachen, Germany, Dec. 2010.