

Erschienene Publikationen **Published Papers**

(1) Determination of Low Concentrations of N and C in CZ-Si by Precise FTIR Spectroscopy

V.D. Akhmetov, H. Richter, N. Inoue
Materials Science and Engineering B **134**(2-3),
207 (2006)

Adding of relatively small amounts of N and C, on the order of $1 \times 10^{14} \text{ cm}^{-3}$ in the growing crystals of Czochralski Si (CZ-Si) is considered now as a tool for the control of the internal gettering processes based on the precipitation of oxygen. The sensitivity of the conventional procedure of measurements by Fourier transform infrared (FT-IR) spectroscopy measurements is not sufficient to determine, in a reliable manner, such concentrations of N and C. This report contains results of the implementation of the modified method of FT-IR measurements, which allows one to improve the sensitivity for more than one order of magnitude. The new method is based mainly on (1) the modified FT-IR system with enhanced photometric accuracy achieved by a suppression of the influence of the instabilities, and (2) using Brewster geometry to suppress the interference effects. The method contains built-in checking of the achieved accuracy of the recorded spectrum. The examples of the determination of [N] and [C] on the 10^{14} cm^{-3} -level in 2 mm thick samples as well as in industrial wafers are presented.

(2) FTIR Spectroscopic System with Improved Sensitivity

V.D. Akhmetov, H. Richter
Materials Science in Semiconductor
Processing **9**(1-3), 92 (2006)

The problem of the determination of the intensity of weak infrared (IR) absorption bands by differential IR spectroscopy is considered for the case of a noise-limited sensitivity. A spectroscopic system based on a Fourier transform IR (FTIR) spectrometer which improves the sensitivity of the IR method by at least 30 times, is described. In the conventional differen-

tial FTIR measurements, only a single pair of spectra (from the analyzed sample and from the reference) is taken during the whole acquisition time. In contrast, in our system, we take the data interchangeably from the analyzed pair of sample and reference during the same acquisition time. This "modulation" of samples suppresses the contribution of the low-frequency noise as well as long-term instabilities in the differential spectrum. The described system consists of an FTIR spectrometer, a computer-controlled optimized sample changer, and software for fully automated multiple measurements. The main steps of data processing as well as an example of application of multiple measurements for a diagnostics of thin wafers are presented.

(3) Pressure-induced Transformations of Nitrogen Implanted into Silicon

V.D. Akhmetov, A. Misiuk, A. Barcz, H. Richter
Physica Status Solidi A **203**(4), 781 (2006)

Czochralski (CZ) Si samples implanted with nitrogen, with doses 10^{17} ion/cm^2 and 10^{18} ion/cm^2 , at 140 keV, were studied by means of Fourier transform infrared spectroscopy after annealing at $1130 \text{ }^\circ\text{C}/5 \text{ h}$ under different hydrostatic pressures, from 1 bar to 10.7 kbar. It has been found for each pressure applied, that the increased nitrogen dose leads to transformation of the broadband spectra to the fine structure ones, corresponding to crystalline silicon nitride. The spectral position of observed sharp peaks in the investigated pressure region is red shifted in comparison to that for the peaks of crystalline silicon oxynitride found recently by other investigators in nitrogen-containing poly-Si as well as in a residual melt of nitrogen-doped CZ-Si. The application of the pressure during annealing results in further red shift of the nitrogen-related bands. The observed decrease of frequency of vibrational bands is explained in terms of the pressure induced lowered incorporation of oxygen into growing oxynitride phase. Secondary ion mass spectrometry data reveal the decrease of oxygen content in implanted layer with increasing pressure during annealing.

(4) Pressure-assisted Lateral Nanostructuring of the Epitaxial Silicon Layers with SiGe Quantum Wells

I.V. Antonova, M.B. Gulyaev, V.A. Skuratov,
R.A. Soots, V.I. Obodnikov, A. Misiuk,
P. Zaumseil
Solid State Phenomena **114**, 291 (2006)

Transformations of the SiGe/Si superlattice structures, either annealed at high pressure, or irradiated by high energy ions and subjected to post-implantation annealing, were studied and compared. Both types of treatments were found to lead to the formation of recharged defects clusters, resulting in the appearance of peaks on C-V characteristics, shrinkage of Ge profiles registered by SIMS technique after annealing, and disappearance of peaks in the free carrier profiles. The effects were more pronounced in the case of high energy ion implantation. The results are explained by the vacancy-assisted precipitation of Ge in SiGe layers.

(5) Residual Stress in Si Nanocrystals Embedded in a SiO₂ Matrix

T. Arguirov, T. Mchedlidze, M. Kittler, R. Rölver,
B. Berghoff, M. Först, B. Spangenberg
Applied Physics Letters **89**, 053111 (2006)

Multiple quantum wells consisting of alternating Si and SiO₂ layers were studied by means of Raman scattering. The structures were fabricated by the remote plasma enhanced chemical vapor deposition of amorphous Si and SiO₂ layers on quartz substrate. The structures were subjected to a rapid thermal annealing procedure for Si crystallization. The obtained results suggest that the Si layers consist of nanocrystals embedded in an amorphous Si phase. It was found that the silicon nanocrystals inside 2 nm thin layers are under high residual compressive stress. Moreover, the metastable Si III phase was detected in these samples supporting the presence of large compressive stresses in the structures. The compressive stress could be relaxed upon local laser annealing.

(6) Towards Silicon Based Light Emitters Utilising the Radiation from Dislocation Networks

T. Arguirov, M. Kittler, W. Seifert, X. Yu
Materials Science and Engineering B **134**,
109 (2006)

On-chip optical interconnects require a CMOS-compatible electrically pumped Si-based light emitter at about 1.5 μm. Dislocations in silicon offer a recombination centre for light emission at the desired energy. Here we report on the radiative properties of dislocation networks, created in a well controllable manner at a certain depth of silicon wafers. Dislocation networks, created by ion implantation and annealing, misfit dislocation in SiGe buffers and a novel concept of dislocations created by misoriented direct bonded Si wafers are discussed. We demonstrate that under a specific misorientation a dislocation network with efficient room temperature D1 (1.55 μm) emission might be generated.

(7) Structure of Biomembrane-on-Silicon Hybrids Derived from X-Ray Reflectometry

M. Birkholz, P. Zaumseil, M. Kittler, I. Wallat,
M. Heyn
Materials Science and Engineering B **134**,
125 (2006)

The organic–inorganic interface and its proper structural adjustment are of central importance for the fabrication of hybrid material systems from biomolecules and semiconductors. Such material hybrids are currently under development for several advanced applications, in particular for biomolecular sensing. An investigation of biomolecular immobilization on semiconductor surfaces by X-ray reflectometry (XRR) will be presented. Complete biomembrane patches of purple membrane (PM) from *Halobacterium salinarum* were immobilized on oxidized and nitrided silicon wafers. A covalent immobilization protocol based on 3-aminopropyltriethoxysilane (APTS) and glutaric dialdehyde (GD) was applied for cross-linking the biomolecules to the semiconductor surface. XRR could be shown to yield the relevant morphological parameters of biomolecular monolayers such as layer

thickness, interface roughness and coverage. Synchrotron radiation was not required, but a laboratory rotating anode set-up was sufficient to study the prepared stacking of organic monolayers. According to the measurement and analysis of XRR patterns both cross-linking layers APTS and GD are required for bonding purple membrane patches to SiO_2/Si , whereas GD alone suffices for cross-linking to $\text{Si}_3\text{N}_4/\text{Si}$. This distinct behavior offers a pathway for nanopatterning of biomolecules on Si surfaces by selective passivation.

(8) A 20 GSample/s, 40 mW SiGe HBT Comparator for Ultra-High-Speed ADC

Y. Borokhovych, H. Gustat
ECS Transactions **3**(7), 937 (2006)

This paper presents a high-speed master-slave comparator in an ECL configuration. Implemented in 190 GHz SiGe HBT technology, the comparator occupies $0.7 \times 0.7 \text{ mm}^2$, including bondpads. The comparator can operate at a speed up to 20 GSample/s with a resolution of 7.2 bits per 1.2 Vp-p input. The low power consumption of the comparator itself (40 mW) and its small corearea of $190 \times 35 \text{ }\mu\text{m}^2$ make it suitable for medium-resolution full-flash A/D converters and other low-power comparator applications.

(9) Ab Initio Study of Point Defects in Dielectrics Based on Pr Oxides

J. Dabrowski, A. Fleszar, G. Lupina, Ch. Wenger
Materials Science in Semiconductor Processing **9**, 897 (2006)

We discuss the influence of band structures and point defects (oxygen vacancies and interstitials, and praseodymium vacancies) in Pr_2O_3 , PrO_2 , and $\text{PrSiO}_{3.5}$ on the electrical properties of high-K gate dielectrics for the application in CMOS technology. In particular, we consider the origin of fixed charges and leakage currents. We address these issues mostly from the perspective of ab initio calculations for formation energies, electronic structures, and band alignment between the film and the silicon substrate.

(10) High Spatial Resolution Mapping of Partially Strain-Compensated SiGe:C Films in the Presence of Postannealed Defects

A.V. Darahanau, A. Benci, A.Y. Nikulin,
J. Etheridge, J. Hester, P. Zaumseil
Journal of Applied Physics **99**, 113531 (2006)

An experimental-analytical technique for the model-independent nondestructive characterization of single-crystal alloys is applied to partially strain-compensated SiGe:C/Si single layer structures with high concentrations of Ge. The studies were performed on pre- and postannealed SiGe:C/Si samples. X-ray Bragg diffraction profiles were collected at a synchrotron radiation source near the absorption edge of Ge. The studies have allowed the reconstruction of the complex crystal structure factor as a function of crystal depth, permitting direct observation of the effect of the thermal annealing on lattice strain and structural composition in the SiGe:C layer. The technique was shown to be applicable to the analysis of both perfect crystals and crystal structures containing a low defect concentration.

(11) An Integrated 3.1-5.1 GHz Pulse Generator for Ultra-Wideband Wireless Localization Systems

X. Fan, G. Fischer, B. Dietrich
Advances in Radio Science **4**, 247 (2006)

This paper presents an implementation of an integrated Ultra-wideband (UWB), Binary-Phase Shift Keying (BPSK) Gaussian modulated pulse generator. VCO, multiplier and passive Gaussian filter are the key components. The VCO provides the carrier frequency of 4.1 GHz, the LC Gaussian filter is responsible for the pulse shaping in the baseband. Multiplying the baseband pulse and the VCO frequency shifts the pulse to the desired center frequency. The generated Gaussian pulse occupies the frequency range from 3.1 to 5.1 GHz with the center frequency at 4.1 GHz. Simulations and measured results show that this spectrum fulfills the mask for indoor communication systems given by the FCC (Federal Communications Commission, 2002). The total power consumption is 55 mW using a supply voltage of 2.5 V. Circuits are realized using the IHP $0.25 \text{ }\mu\text{m}$ SiGe:C BiCMOS technology.

- (12) Cost-Effective Integration of an FN-programmed Embedded Flash Memory into a 0.25 μm SiGe:C RF-BiCMOS Technology**
A. Fox, K.E. Ewald, P. Schley, R. Barth, S. Marschmeyer, C. Wolf, V.E. Stikanov, A. Gromovyy and A. Hudyryev
Microelectronics Journal **37**(11), 1194 (2006)

This paper presents a process technology for cost-effective integration of low-power flash memories into a 0.25 μm , high performance SiGe:C RF-BiCMOS process. Only four additional lithographic steps are used on top of the baseline BiCMOS process, leading to in total 23 mask levels for the BiCMOS/embedded flash process. Uniform-channel Fowler-Nordheim programmable and erasable stacked-gate cells, suitable for medium density (Mbit) memories, are demonstrated. Peripheral high-voltage transistors, with >10 V breakdown voltage, are integrated without additional mask steps on top of the flash cell integration. The flash memory integration is modular and has negligible impact on the original CMOS and HBT device parameters.

- (13) Infrared Absorption Measurement of Carbon Concentration in Silicon Crystals**
N. Inoue, M. Nakatsu, V. Akhmetov
ECS Transactions **2**(2), 461 (2006)

Sensitivity and accuracy of carbon concentration measurement by infrared (IR) absorption spectroscopy are improved. We cut unnecessary high energy light input by a low pass filter. Measurement condition of sample and reference is kept as equal as possible by using the sample changer and measure them alternately for many times. It is possible to improve the accuracy by keeping the temperature of sample and reference as close as possible. In the analytical procedure, we use a reduced phonon spectrum fitting instead of straight baseline. Standard carbon spectrum fitting to a small carbon peak make it possible to determine the carbon concentration accurately. As a result, we can measure differential carbon concentration down to about 1×10^{14} atoms/cm³.

- (14) 1.5 μm Luminescence of Silicon Nanowires Fabricated by Thermal Evaporation of SiO**
G. Jia, M. Kittler, Z. Su, D. Yang, and J. Sha
Physica Status Solidi A **203**, R55 (2006).

Silicon nanowires (NWs) fabricated by thermal evaporation of SiO were studied by cathodoluminescence. A band around 1550 nm (0.8 eV) was observed. It appears above 225 K and its intensity increases with increasing temperature. The broad band consists of the defect-related D1 and D2 lines and is supposed to be formed by extended defects within the NWs that are decorated with oxygen. Moreover, luminescence bands are found that are related to Si oxide and/or the interface between Si and Si oxide. In addition, the Si band-to-band line and the G center are observed.

- (15) A Contribution to Oxide Precipitate Nucleation in Nitrogen Doped Silicon**
G. Kissinger, U. Lambert, M. Weber, F. Bittersberger, T. Müller, H. Richter, W. von Ammon
Physica Status Solidi A **203**(4), 677 (2006)

Based on Fourier transform infrared (FTIR) spectroscopy and bulk micro-defect investigations, in relation to earlier results of other groups, we suggest the following model for oxide precipitate nucleation in N-doped silicon. Around 600 °C a nucleation maximum exists where oxide precipitates are formed via oxygen attachment to both NOO and NNO complexes. These complexes are formed by the reaction of NN with interstitial oxygen. Vacancy supersaturation enhances this type of precipitate nucleation. A second nucleation maximum exists around 900 °C. This is assumed to be due to a vacancy assisted oxynitride SiO_xN_y based nucleation process. The higher density of the oxynitride phase compared to silicon oxide and a higher residual vacancy concentration would explain the observed shift of the maximum nucleation rate to higher temperatures around 900 °C.

(16) Analytical Modeling of the Interaction of Vacancies and Oxygen for Oxide Precipitation in RTA Treated Silicon Wafers

G. Kissinger, J. Dabrowski, A. Sattler,
C. Seuring, T. Müller, H. Richter, W. von Ammon
ECS Transactions **2**(2), 247 (2006)

We have investigated the impact of RTA induced vacancy supersaturation on oxide precipitation based on as much as possible experimental and theoretical values. Oxygen precipitation after RTA processing was found to be controlled by the initial concentration of interstitial oxygen in a sixth power dependency and frozen vacancies just in a cubic dependency. The formation of tensile strained $n\text{VO}_2$ clusters seems to be the favored process for coherent nucleation of oxide precipitates. The reduction of interstitial oxygen can be accurately modeled for the temperature range from 1150 °C to 1250 °C using Ham's theory for precipitate growth and an empirical relation based on nucleation of oxide precipitates by agglomeration of VO_2 complexes. During RTA treatments at temperatures greater than or equal to 1300 °C vacancies seem to be consumed by other processes. Below RTA temperatures of 1150 °C, oxide precipitation is dominated by shrunken as-grown precipitate nuclei because as-grown nuclei can be dissolved only at RTA temperatures greater than or equal to 1150 °C.

(17) Combination of Optical Measurement and Precipitation Theory to Overcome the Obstacles of Detection Limits

G. Kissinger, T. Müller, A. Sattler, W. Häckl,
P. Krottenthaler, T. Grabolla, H. Richter,
W. von Ammon
Materials Science in Semiconductor
Processing **9**, 236 (2006)

Ham's theory was applied in order to become independent of detection limits for oxide precipitates and to quantify the phenomenon of oxygen loss to invisible BMDs during thermal treatments. The density of detectable bulk micro-defects (BMDs) depends on the size distribution of grown-in nuclei and the ramp rate, temperature, and duration of the thermal treatment applied. There is no correlation to the invisible

BMDs. During conventional annealing, the density of the invisible BMDs decreases exponentially with increasing radius of precipitates at a nearly constant loss of interstitial oxygen. Only if the calculated radius exceeds 70 nm, a 100 % loss of interstitial oxygen to BMDs detectable by scanning infrared microscopy (SIRM) seems to be possible. After RTA processing at 1230 °C, a period of 1 h at 1000 °C would be necessary for the growing oxide precipitates to reach a saturated density detectable by SIRM, but there remains a very high density of invisible BMDs consuming interstitial oxygen. In N-doped silicon, the vast majority of BMDs is detectable by SIRM, cleave and etch, and infrared light scattering tomography after thermal processing.

(18) Oxide Precipitation via Coherent "Seed"-Oxide Phases

G. Kissinger, J. Dabrowski
ECS Transactions **3**(4), 97 (2006)

Until now, oxide precipitation is treated in theoretical models as homogeneous nucleation of incoherent SiO_x precipitates. In reality, this type of nucleation is very seldom because it is hindered by a high energy barrier which results from the incoherent interface. The key role of VO_2 complexes for nucleation of oxide precipitates was already demonstrated on a broad experimental basis. Ab initio calculations have shown that the agglomeration of VO_2 is energetically favorable. In this contribution, the bulk modulus and molecular volume of $n\text{VO}_2$ clusters, so-called seed- SiO_2 , are determined and an analytical nucleation model is developed. In a second step, a more advanced model was developed which is based on a mono-layered agglomeration of VO_2 complexes on 100 planes, so called seed- SiO and the heterogeneous nucleation of amorphous SiO_2 ($a\text{-SiO}_2$) at these plates. From energetic reasons, the advanced model is regarded as the most plausible nucleation path.

(19) Regular Dislocation Networks in Silicon as a Tool for Novel Device Application

M. Kittler, M. Reiche, W. Seifert, X. Yu,
T. Arguirov, O.F. Vyvenko, T. Mchedlidze,
T. Wilhelm
ECS Transactions **3**(4), 429 (2006)

The paper deals with possibilities of utilizing dislocation structures as active components of devices. The suggested means for controlled formation of dislocations is direct wafer bonding, giving rise to well defined dislocation networks with adjustable properties. It is shown that the networks allow building light emitting diodes based on the D line luminescence of the dislocations. A light emitter at about 1.5 μm wavelength is demonstrated, with an efficiency potential estimated at 1 %. Immobilization of biomolecules on Si surfaces by Coulomb interaction with the dislocations in the network is another application discussed. Finally, the potential use of dislocation networks as insulating layers permeable to impurities to be gettered and as three-dimensional buried conductive channels in the Si wafer is addressed.

(20) Self-Organized Pattern Formation of Biomolecules at Si Surfaces: Intended Application of a Dislocation Network

M. Kittler, X. Yu, O.F. Vyvenko, M. Birkholz,
W. Seifert, M. Reiche, T. Wilhelm, T. Arguirov,
A. Wolff, W. Fritzsche, M. Seibt
Materials Science and Engineering C **26**,
902 (2006)

Defined placement of biomolecules at Si surfaces is a precondition for a successful combination of Si electronics with biological applications. We aim to realize this by Coulomb interaction of biomolecules with dislocations in Si. The dislocations form charged lines and they will be surrounded with a space charge region being connected with an electric field. The electric stray field in a solution of biomolecules, caused by dislocations located close to the Si surface, was estimated to yield values up to few kVcm^{-1} . A regular dislocation network can be formed by wafer direct bonding at the interface between the bonded wafers in case of misorientation. The adjustment of misori-

entation allows the variation of the distance between dislocations in a range from 10 nm to a few μm . This is appropriate for nanobiotechnology dealing with protein or DNA molecules with sizes in the nm and lower μm range. Actually, we achieved a distance between the dislocations of 10–20 nm. Also the existence of a distinct electric field formed by the dislocation network was demonstrated by the technique of the electron-beam-induced current (EBIC). Because of the relatively short range of the field, the dislocations have to be placed close to the surface. We positioned the dislocation network in an interface being 200 nm parallel to the Si surface by layer transfer techniques using hydrogen implantation and bonding. Based on EBIC and luminescence data we postulate a barrier of the dislocations at the as bonded interface < 100 meV. We plan to dope the dislocations with metal atoms to increase the electric field. We demonstrated that regular periodic dislocation networks close to the Si surface formed by bonding are realistic candidates for self-organized placing of biomolecules. Experiments are underway to test whether biomolecules decorate the pattern of the dislocation lines.

(21) Silicon-Based Light Emitters

M. Kittler, M. Reiche, T. Arguirov,
W. Seifert, X. Yu
Physica Status Solidi A **203**(4), 802 (2006)

A new concept for a Si light emitting diode (LED) capable of emitting efficiently at 1.55 μm or at 1.3 μm , respectively, is proposed. It utilizes radiation from a well-defined dislocation network created in a reproducible manner by direct Si wafer bonding. The wavelength of the light emitted from the network can be tailored by adjusting the misorientation between the Si wafers. That way dominance of radiation at 1.55 μm (D1 line) or at 1.3 μm (D3 line) was achieved. There are hints that decoration of the dislocations by oxygen enhances the intensity of the D1 radiation. A critical analysis of the light emitter proposed by W. L. Ng et al. [Nature 410, 192 (2001)] using band-to-band emission is given. Its application at the above wavelengths would require a few microns thick SiGe layer on top of the Si substrate.

(22) System Integration by Request-driven GALS Design

M. Krstic, E. Grass, C. Stahl, M. Piz
 IEE Proceedings - Computers and Digital
 Techniques **153**(5), 362 (2006)

A novel request-driven globally asynchronous locally synchronous (GALS) technique for the system integration of complex digital blocks is proposed. For this new GALS technique, an asynchronous wrapper compliant is developed and evaluated. This proposed GALS technique is applied to a baseband processor compatible with the wireless LAN standard IEEE 802.11a. The developed GALS baseband processor chip is fabricated and measured. Besides improvements of the system integration process, a 5 dB reduction in electromagnetic interference, 30 % reduction in instantaneous supply current variation, and similar dynamic power consumption as in the synchronous baseband processor is achieved.

(23) A Low-Power, X-Band SiGe HBT Low-Noise Amplifier for Near-Space Radar Applications

W.-M. L. Kuo, R. Krithivasan, X. Li, Y. Lu,
 J. D. Cressler, H. Gustat, B. Heinemann
 IEEE Microwave and Wireless Components
 Letters **16**(9), 520 (2006)

A low-power, X-band low-noise amplifier (LNA) is presented. Implemented with 180 GHz silicon-germanium (SiGe) heterojunction bipolar transistors (HBTs), the circuit occupies $780 \times 660 \mu\text{m}^2$. The LNA exhibits a gain of 11.0 dB at 9.5 GHz, a mean noise figure of 2.78 dB across X-band, and an input third-order intercept point of -9.1 dBm near 9.5 GHz, while dissipating only 2.5 mW. The low-power performance of this LNA, together with its natural total-dose radiation immunity, demonstrates the potential of SiGe HBT technology for near-space radar applications.

(24) A Distributed Privacy Enforcement Architecture Based on Kerberos

P. Langendörfer, K. Piotrowski, M. Maaser
 WSEAS Transactions on Communications **5**,
 2 (2006)

In this paper we propose a distributed privacy enforcement architecture. Each mobile client runs its own privacy negotiation unit as well as its own Kerberos ticket granting server. The privacy negotiation units are compatible with the P3P standard, but allow mutual exchange of privacy policies and enforce that these are digitally signed in case of an agreement. Each of the individual TGS may provide tickets only for data that is owned by the mobile (user) on behalf of which it is executed. In addition the initial authentication phase can be done by the standard Kerberos approach as well as based on PKI using certificate chains. So our architecture gives the user back control over her personal data and it provides better scalability to the context aware platform. It also opens up the Kerberos approach for environments in which the mobile client discovers new services, which are not registered at its platform, i.e., at the Kerberos server. Our measurements indicate that running our privacy enforcement architecture on the mobile device does not inhibit a real burden. Successful negotiations are completed within 2 seconds including message exchange and compiling a ticket is done in about 100 ms at 238 MHz and the client application size of our Java TGS implementation is less than 50 kByte.

(25) Praseodymium Silicate Films on Si(100) for Gate Dielectric Applications: Physical and Electric Characterization

G. Lupina, T. Schroeder, J. Dabrowski,
 Ch. Wenger, A.U. Mane, H.-J. Müssig,
 P. Hoffmann, D. Schmeißer
 Journal of Applied Physics **99**, 114109 (2006)

Praseodymium (Pr) silicate dielectric layers were prepared by oxidation and subsequent N_2 annealing of thin Pr metal layers on $\text{SiO}_2/\text{Si}(100)$ substrates. Transmission electron microscopy studies reveal that the resulting dielectric has a bilayer structure. Nondestructive depth profiling by using synchrotron radiation x-ray photoelectron spectroscopy shows that, starting from the substrate, the dielectric stack is composed of a SiO_2 -rich and a SiO_2 -poor Pr silicate phase. Valence and conduction band offsets of about 2.9 and 1.6 eV, respectively, between the dielectric and the Si(100) substrate bands were deduced. Pr

silicate films with an equivalent oxide thickness of 1.8 nm show approximately three orders of magnitude lower leakage currents than silicon oxynitride references. Capacitance versus voltage measurements of the Pr silicate/Si(100) system report a flat band voltage shift of 0.22 V, an effective dielectric constant of about 11 and a reasonably good interface quality with an interface state density on the order of 10^{11} cm^{-2} . Experimental results are supplemented by ab initio considerations which review the most probable mechanisms of fixed charge formation in the Pr silicate layers.

(26) Thermal Stability of Pr Silicate High-k-Layers on Si(100)

G. Lupina, T. Schroeder, Ch. Wenger,
J. Dabrowski, H.-J. Müssig
Applied Physics Letters **89**, 222909 (2006)

Thermal stability of amorphous Pr silicate high-k layers on Si(001) was evaluated in view of complementary metal-oxide-semiconductor transistor processing requirements. Materials science techniques prove that no crystallization, no phase separation into SiO_2 and Pr_2O_3 , and no Pr silicide formation at the interface occur after 1 min rapid thermal annealing treatment in N_2 over the temperature range from 600 to 900 °C. Electrical measurements confirm within this thermal budget well-behaved characteristics with k values between 11 and 13 and leakage currents about three orders of magnitude lower than in case of SiON reference layers.

(27) Involvement of Iron-Phosphorus Complexes in Iron Gettering for N-Type Silicon

T. Mchedlidze, M. Kittler
Physica Status Solidi A **203**(4), 786 (2006)

Mechanisms for phosphorus (P) diffusion gettering (PDG) for iron are supplemented by possible formation of iron-phosphorus complexes in heavy P-doped region. Existence of such complexes was recently reported based on the results of electron-spin resonance investigations. DLTS measurements suggest a high probability for the formation of iron-phosphorus

complexes in n-type silicon in the presence of vacancies and/or vacancy-phosphorus pairs. On the other hand, recent theoretical calculations predict formation of negatively charged vacancy-phosphorus pairs in the heavily P-doped region of silicon during PDG. These facts indicate on possibility to explain the high efficiency of the PDG process for iron by assuming formation of iron-phosphorus complexes in the heavy P-doped region of silicon. Possible advantages of application of hydrogen or nitrogen assisted PDG are considered.

(28) Structural and Optical Properties of Si/SiO₂ Multi-Quantum Wells

T. Mchedlidze, T. Arguirov, M. Kittler,
R. Roelver, B. Berghoff, M. Foerst and
B. Spangenberg
Physica E available online (2006)

Structural and optical properties of Si/SiO₂ multi-quantum wells (MQW) were investigated by means of Raman scattering and photoluminescence (PL) spectroscopy. The MQW structures were fabricated on a quartz substrate by remote plasma enhanced chemical vapour deposition (RPECVD) of alternating amorphous Si and SiO₂ layers. After layer deposition the samples were subjected to heat treatments, i.e. rapid thermal annealing (RTA) and furnace annealing. Distinct PL signatures of confined carriers evidenced formation of Si-nanocrystals (nc-Si) in annealed samples. Analyses of Raman spectra also show presence of nc-Si phase along with amorphous-Si (a-Si) phase in the samples. The strong influence of the annealing parameters on the formation of nc-Si phase suggests broad possibilities in engineering MQW with various optical properties. Interestingly, conversion of the a-Si phase to the nc-Si phase saturates after certain time of furnace annealing. On the other hand, thinner Si layers showed a disproportionately lower crystalline volume fraction. From the obtained results we could assume that an interface strain prevents full crystallization of the Si layers and that the strain is larger for thinner Si layers. The anomalous dependence of nc-Si Raman scattering peak position on deposited layer thickness observed in our experiments also supports the above assumption.

(29) Atomically Controlled Processing for Group IV Semiconductors by Chemical Vapor Deposition

J. Murota, M. Sakuraba, B. Tillack
 Japanese Journal of Applied Physics Pt. 1
 45(9a), 6767 (2006)

One of the main requirements for Si-based ultrasmall devices is atomic-order control of process technology. Here we show the concept of atomically controlled processing for group IV semiconductors based on atomic-order surface reaction control. By ultraclean low-pressure chemical vapor deposition using SiH_4 and GeH_4 gases, high-quality low-temperature epitaxial growth of Si, Ge, and $\text{Si}_{1-x}\text{Ge}_x$ with atomically flat surfaces and interfaces on Si(100) is achieved, and atomic-order surface reaction processes on group IV semiconductor surface are formulated based on a Langmuir-type surface adsorption and reaction scheme. In in-situ doped $\text{Si}_{1-x}\text{Ge}_x$ epitaxial growth on the (100) surface in a SiH_4 - GeH_4 -dopant (PH_3 , or B_2H_6 or SiH_3CH_3)- H_2 gas mixture, the deposition rate, the Ge fraction and the dopant concentration are explained quantitatively assuming that the reactant gas adsorption/reaction depends on the surface site material and that the dopant incorporation in the grown film is determined by Henry's law. Self-limiting formation of 1–3 atomic layers of group IV or related atoms in the thermal adsorption and reaction of hydride gases on Si(100) and Ge(100) is generalized based on the Langmuir-type model. Si or SiGe epitaxial growth over N, P or B layer already-formed on Si(100) or SiGe(100) surface is achieved. Furthermore, the capability of atomically controlled processing for advanced devices is demonstrated. These results open the way to atomically controlled technology for ultralarge-scale integrations.

(30) Effect of Fluorine on the Activation and Diffusion Behaviour of Boron Implanted Preamorphized Silicon

S. Paul, W. Lerch, B. Colombeau, N.E.B. Covern, F. Christiano, S. Bonelli, D. Bolze
 Journal of Vacuum Science and Technology B
 24(1), 437 (2006)

In this study we investigated the effect of position and dose of a separate fluorine coimplant on the activation and diffusion behavior of germanium preamorphized boron implants. Germanium preamorphized silicon was implanted with boron, and fluorine was subsequently implanted with different energies and doses to place it either at the projected range of the boron implant, or between the boron profile and the amorphous-crystalline interface, or at this interface. The wafers were spike annealed at temperatures ranging from 950 to 1050 °C. In terms of sheet resistance it was found that the superposition of B and F profiles leads to decreased activation compared to the wafers without any F implant. Increased boron activation is seen for all the other cases with the biggest effects for the highest fluorine dose. The positioning of F either between the boron projected range and the end of range (EOR) or at the EOR leads to more box-shaped boron profiles with shallower junction depth than the reference wafer.

(31) Protecting Privacy in E-Cash Schemes by Securing Hidden Identity Approaches against Stochastic Attacks

K. Piotrowski, P. Langendörfer, O. Maye, Z. Dyka
 Internet Research Emerald 16(2), 159 (2006)

To enhance security and privacy of e-cash systems that apply revocable anonymity by presenting a statistical attack that reveals the hidden ID and suitable protection means against this kind of attack.

(32) Quantum Theory for ac-Admittance

P.N. Racec, U. Wulf
 Materials Science and Engineering C 26,
 876-880 (2006)

Starting from a mean field calculation for the static capacitance of a MIS-nanostructure with a near back gate [P.N. Racec, E.R. Racec and U. Wulf, Phys. Rev. B 65, 193314, (2002)] we develop an approach to determine its ac-admittance. Mainly because of the interaction with the near back gate the inversion electron layer which forms in the considered MIS-nanostructure assumes an open character which is taken into

account in the Landauer–Büttiker formalism. For the Coulomb interaction the Hartree approximation is applied. In quantitative agreement with experiments a characteristic step in the static C–V trace results when the inversion layer is populated from the back gate. We found that this characteristic step is dominated by a particular resonance which we call intermediate resonance. Consistent with our static calculations we determine the density–density correlation function in the random phase approximation to find the ac-admittance. As an example we demonstrate that the lifetime of the static resonance induces a characteristic turnover frequency for the ac-admittance. An equivalent small-signal circuit is proposed and the dependence of its elements (capacitance and resistance) on the working point for low and high frequencies are presented.

(33) Small-Signal Circuit Elements of MIS-Type Nanostructures

P.N. Racec, U. Wulf

Solid State Phenomena **121-123**, 549 (2006)

Starting from a mean field calculation for the static capacitance of a MIS-nanostructure with a near back gate [P.N. Racec, E.R. Racec and U. Wulf, Phys. Rev. B **65**, 193314, (2002)] we develop an approach to determine the equivalent small-signal circuit. The analyzed system has an open character, taken into account in the Landauer–Büttiker formalism. The Coulomb interaction is treated in Hartree approximation. Consistent with our static calculation we determine the charge-charge correlation function in the random phase approximation to find the ac-admittances. The small-signal circuit consists of a voltage-dependent capacitance and a resistance in series. Beyond a characteristic frequency V_c they become frequency dependent. The characteristic frequency is given by the life time of specific resonance which develops in the system.

(34) Dislocation-induced Light Emission

M. Reiche, M. Kittler, T. Wilhelm, T. Arguirov,
W. Seifert, X. Yu, T. Mchedlidze

ECS Transactions **3(7)**, 311 (2006)

Hydrophobic wafer bonding causes the formation of dislocation networks in the bonded interface. The structure of the dislocation network depends on the misorientation between both wafers during the bonding. The characterization of the dislocation networks proved that the luminescence depends only on the structure of the dislocation network. Different degrees of misorientation cause that different lines in the PL- and CL-spectra appear. This makes it possible to construct monochromatic light sources.

(35) Dopant Diffusion in SiGe:C Alloys

H. Rücker, B. Heinemann, R. Kurps, Y. Yamamoto
ECS Transactions **3(7)**, 1069 (2006)

In this paper, we discuss the impact of germanium and carbon on the diffusion of common dopants in Si-based alloys. We review results of various diffusion experiments and discuss the basic physical mechanisms of the observed changes of diffusion coefficients as a function of alloy composition. Results of boron and phosphorus marker layer diffusion experiments are presented for binary $\text{Si}_{1-x}\text{Ge}_x$ and $\text{Si}_{1-y}\text{C}_y$ and ternary $\text{Si}_{1-x-y}\text{Ge}_x\text{C}_y$ alloys.

(36) On the Epitaxy of Twin-Free Cubic (111) Praseodymium Sesquioxide Films on Si (111)

T. Schroeder, P. Zaumseil, G. Weidner,
Ch. Wenger, J. Dabrowski, H.-J. Müssig,
P. Storck

Journal of Applied Physics **99**, 014101 (2006)

Twin-free epitaxial cubic (111) praseodymium sesquioxide films were prepared on Si(111) by hexagonal-to-cubic phase transition. Synchrotron radiation grazing incidence x-ray diffraction and transmission electron microscopy were applied to characterize the phase transition and the film structure. As-deposited films grow single crystalline in the (0001)-oriented hexagonal high-temperature phase of praseodymium sesquioxide. In situ x-ray diffraction studies deduce an activation energy of 2.2 eV for the hexagonal-to-cubic phase transition. Transmission electron microscopy shows that the phase transition is accompanied by an interface reaction at the oxide/Si(111) boundary. The resulting cubic (111) low-temperature

praseodymium sesquioxide film is single crystalline and exclusively shows B-type stacking. The 180° rotation of the cubic oxide lattice with respect to the Si substrate results from a stacking fault at the substrate/oxide boundary.

(37) Standardization of Test Methods of Bulk Microdefects and Denuded Zone in Annealed CZ Si

R. Takada, N. Inoue, K. Moriya, K. Kashima, K. Nakashima, M. Kato, S. Kitagawa, T. Ono, H. Uzushido, N. Nango and V. Akhmetov
ECS Transactions **2**(2), 471 (2006)

The requirement to standardize measurement methods for BMD (Bulk Micro Defect) density and DZ (Denuded Zone) CZ silicon has led to the establishment of a SEMI standard for annealed CZ silicon wafers. Therefore, it was decided that we should aim at standardizing the preferential-etching and 90 degrees laser-scattering tomography techniques as a collaborative work between JEITA (Japan Electronics and Information Technology Industries Association) and JSPS (Japan Society of Promotion of Science) 145th Committee. In this work, we carried out a set of round robin tests and examined whether we could jointly standardize both the preferential-etching and the 90 degrees laser-scattering methods. This resulted in a standardized measurement protocol for BMD density and DZ width, which has become known as the JEITA standard EM 3508 [1].

(38) Atomic Layer Processing for Doping of SiGe

B. Tillack, Y. Yamamoto, D. Bolze, B. Heinemann, H. Rücker, D. Knoll, J. Murota, W. Mehr
Thin Solid Films **508**(1-2), 279 (2006)

Atomic layer processing has been demonstrated for doping of SiGe during Reduced Pressure Chemical Vapour Deposition (RPCVD) in a commercial single wafer reactor. Atomic level control of dose and location has been obtained for B doping using B₂H₆ and for P doping using PH₃. The main idea of atomic layer processing is the separation of adsorption of the reactant gases from the deposition process. By this way, self-

limitation has been shown for P doping. By lowering the temperature for B₂H₆ exposure (100 °C), the non-self-limiting character of the B doping process can be changed to self-limitation. By this manner, very shallow doping profiles with low sheet resistance have been obtained, capable for future ultra-shallow junction applications. P atomic layer doping is shown to be suitable for the creation of steep and narrow doping profiles suitable for high-performance pnp Heterojunction Bipolar Transistors (HBTs). This result, together with the already demonstrated usage of B atomic layer doping for npn HBTs, demonstrates the capability of the atomic layer processing approach for future devices with critical requirements for dopant dose and location control.

(39) High Quality Al₂O₃/Pr₂O₃/Al₂O₃ MIM Capacitors for RF Applications

Ch. Wenger, G. Lippert, R. Sorge, T. Schroeder, A.U. Mane, G. Lupina, J. Dabrowski, P. Zaumseil, X. Fan, L. Oberbeck, U. Schröder, H.-J. Müssig
IEEE Transactions on Electron Devices **53**(8), 1937 (2006)

The electrical characteristics of layered Al₂O₃/Pr₂O₃/Al₂O₃ metal-insulator-metal (MIM) capacitors for RF device applications are presented for the first time. This advanced dielectric layer system 4-nm Al₂O₃/8-nm Pr₂O₃/4-nm Al₂O₃ shows a high capacitance density of 5.7 fF/μm², a low leakage current density of 5 × 10⁻⁹ A/cm² at 1 V, and an excellent dielectric loss behavior over the studied frequency range.

(40) Chemical Vapor Phase Etching of Polycrystalline Selective to Epitaxial SiGe

Y. Yamamoto, B. Tillack, K. Köpke, O. Fursenko
Thin Solid Films **508**(1-2), 297 (2006)

Combination of nonselective Si/SiGe growth with selective chemical vapor phase etching of poly-Si/SiGe was investigated with the aim to create epitaxial Si/SiGe in a selective manner. Directly after the nonselective deposition, an HCl vapor phase etching was performed within the same reactor (RPCVD) at diffe-

rent process conditions (HCl partial pressure, etching temperature) to remove the polycrystalline Si/SiGe selectively to the epitaxial material. Microloading effect of nonselective SiGe process was ignorable to that of selective SiGe process. Etching rate of poly-Si/SiGe was higher than that of epitaxial Si/SiGe. We found that there is a pattern size dependence of the etching process which becomes smaller by increasing HCl flow, indicating that high HCl flow condition is required for uniform epitaxial Si/SiGe thickness. Selectivity of polycrystalline to epitaxial Si/SiGe becomes higher with increasing etching temperature. The selectivity of polycrystalline to epitaxial etching for SiGe can be improved by adding a thin Si cap layer which will be partly removed during the etching process.

(41) P Doping Control During SiGe:C Epitaxy

Y. Yamamoto, B. Tillack, K. Köpke, R. Kurps
Thin Solid Films **508** (1-2), 288 (2006)

Phosphorus (P) doping during SiGe:C epitaxy by using reduced pressure chemical vapor deposition (RPCVD) was investigated with the aim to prevent non-intended doping and to create steep doping profiles. We found that P diffusion during cap SiGe:C growth is not a major cause for P autodoping. The source of P autodoping is not the reactor but the wafer itself. By unloading the wafer at < 200 °C in H₂ HF dip treatment after P-doped SiGe:C layer deposition, P autodoping was drastically suppressed. This means that the source layer for P autodoping was partly removed by the HF treatment. We also found that this layer could not be removed by in-situ HCl dry etching after P-doped SiGe:C layer deposition. Lowering growth rate of nondoped cap SiGe:C layer without changing temperature improves the P autodoping at high P concentration. By reducing growth temperature from 600 to 550 °C for nondoped SiGe:C cap layer keeping same growth rate, steepness of P autodoping was improved from 20.9 nm/dec to 8.7 nm/dec. By reducing growth temperature further to 500 °C, steepness of P autodoping is drastically improved to 3.4 nm/dec. The impact of the growth temperature is indicating segregation as the main factor for autodoping and

profile steepness. Therefore, by reducing growth temperature for SiGe cap layer deposition, non-intended P doping could be suppressed resulting in very steep P profiles applicable for devices with critical doping profile requirements.

(42) Properties of Dislocation Networks Formed by Si Wafer Direct Bonding

X. Yu, T. Arguirov, M. Kittler, W. Seifert,
M. Ratzke, M. Reiche
Materials Science in Semiconductor
Processing **9**, 96 (2006)

Reproducible formation of well-controlled dislocation structures is a prerequisite to use dislocations as an active part of devices. Regular dislocation networks have been formed at the interface by Si wafer direct bonding. The barriers of interface were generally smaller than 100 meV. The temperature dependence of the electron-beam-induced current (EBIC) contrast of the interface indicates a deep state density of a few 10E5 per cm along the dislocation lines in the network. It is also found that the dislocation networks in Si can act as effective channel for carrier transport. Photoluminescence (PL) reveals that the D line spectrum related to the dislocation networks can be tailored by the bonding misorientation. So, the D1 line can be made the dominating feature in the PL spectrum. It is suggested that regular dislocation networks represent an interesting new nanosystem for future applications, such as accommodation biomolecules onto silicon, dislocation-based LED or buried nanowires.

(43) Optimization of Anti-reflective Coatings for High NA Lithography

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- (55) **A Broadband Low Spur Fully Integrated BiCMOS PLL for 60 GHz Wireless Applications**
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- (69) **Nanoelectronics – a Major Driver for Ultra-high Integration and Ultra-high Speed Innovations**
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- (70) **A Complementary RF-LDMOS Architecture Compatible with 0.13 μm CMOS Technology**
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- (81) A Fully Differential 60 GHz Receiver Front-End with Integrated PLL in SiGe:C BiCMOS**
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- (105) Ultra-High Speed A/D and D/A Converters**
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- (106) 60 GHz RF-Frontend for 1 GBit/s WLAN Transceiver**
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- (109) Frequenzagiler Synthesizer und effizienter Leistungsverstärker für Multi-Standard Basisstationen**
J.C. Scheytt
Proc. BMBF Statusseminar (2006)
- (110) High-Performance Mixed-Signal ICs in SiGe BiCMOS Technology**
J.C. Scheytt, R. Kraemer
Proc. European Microwave Week (2006)

(111) An Integrated 5 GHz Wideband Quadrature Modem in SiGe:C BiCMOS Technology

K. Schmalz, F. Herzel, M. Piz
Proc. of the 36th European Microwave Conference, 1656 (2006)

(112) Radar Circuits and Components

W. Winkler
Proc. 36th European Microwave Conference (2006)

(113) A 70 MHz – 4.1 GHz 5th-Order Elliptic gm-C Low-Pass Filter in Complementary SiGe Technology

L. Yuan, R. Krithivasan, W.-M.L. Kuo, L. Xiangtao, J.D. Cressler, H. Gustat, B. Heinemann
Proc. of the IEEE Bipolar/BiCMOS Circuits and Technology Meeting, BCTM '06, 4.3.1. (2006)

(114) 60 GHz Demonstrator in 0.25 μ m SiGe:C BiCMOS Technology

E. Grass, M. Piz, F. Herzel, K. Schmalz, Y. Sun, S. Glisic, K. Tittelbach-Helmrich
Proc. IEEE 802.15 Meeting, Document Number: IEEE 802.15-06/0320r0 (2006)

(115) Protocol Integration of 60 GHz PHY

E. Grass, K. Tittelbach-Helmrich, D. Dietterle, J.-P. Ebert, R. Kraemer
Proc. IEEE 802.15 Meeting, Doc.No: IEEE 802.12-06/0127r0 (2006)

(116) NEPP: Negotiation Enhancements for Privacy Policies

M. Maaser, S. Ortmann, P. Langendörfer
Proc. W3C Workshop on Languages for Privacy Policy Negotiation and Semantics-Driven Enforcement (2006)

(117) 60 GHz Channel Measurements for "Video Supply in Trains, Busses and Aircraft" Scenario

M. Peter, W. Keusgen, E. Grass
Proc. IEEE 802.15 Meeting, Document Number: IEEE 802.15-06/0476r0 (2006)

Eingeladene Vorträge
Invited Presentations

(1) Biomolecular Sensing - and Potential Contributions from Microelectronics

M. Birkholz
Technische Fachhochschule Wildau, January 26, 2006, Germany

(2) Körpernahe Funknetze zur Fernüberwachung des Gesundheitszustandes von Patienten

D. Dietterle
Gauss-Woche, Frankfurt (Oder), April 07, 2006, Germany

(3) BASUMA - Body Area System for Ubiquitous Multimedia Applications

J.-P. Ebert
5. Schloß Steinhöfel Seminar of GI RGB and German Chapter of ACM, Fürstenwalde, April, 2006, Germany

(4) BASUMA - Ein körpernahes Funknetzwerk für Telemonitoring

J.-P. Ebert, T. Falck, J. Espina
7. Würzburger Medizintechnik-Kongress für medizinische Anwendungen im Krankenhaus, Technologien-Partnerschaften-Praktische Lösungen, Würzburg, Mai 14-17, 2006, Germany

(5) Drahtlose Kommunikation in eingebetteten Automobilsystemen - Stand und Vision der Funktechnik für den Einsatz in Fahrzeugen

J.-P. Ebert
Die Zuliefermesse: 7. Internationale Fachmesse für Teile, Module, Komponenten und Technologien, Leipzig, June, 2006, Germany

(6) SiGe:C BiCMOS Technologien für 77/79 GHz Automobilradar

G.G. Fischer
GMM-Workshop „Hochfrequenz-Halbleitertechnologien für Automobilanwendungen“, München, June 22, 2006, Germany

- (7) **UWB Transceiver Architecture for Robust Location Determination**
G. Fischer, J.C. Scheytt, R. Kraemer
IEEE International Microwave Symposium
IEEE-MTT-S, Workshop WMA, San Francisco,
June 11-16, 2006, USA
- (8) **Ultra-Wide Band Transceiver für Indoor Lokalisierung und Datenkommunikation**
G. Fischer
Workshop Analog Integrated Circuits,
TU Kaiserslautern, March 13, 2006, Germany
- (9) **Broadband Wireless Communication at 60 GHz: Systems, Circuits and Technologies**
E. Grass, M. Piz, F. Herzel, K. Schmalz, Y. Sun,
S. Glisic, M. Krstic, K. Tittelbach-Helmrich,
M. Ehrig, W. Winkler, R. Kramer, J.C. Scheytt
Workshop "From Research to Innovation",
Szczecin, May 17-19, 2006, Poland
- (10) **High-Performance BiCMOS Technologies without Epitaxially-Buried Subcollectors and Deep Trenches**
B. Heinemann, R. Barth, D. Knoll, H. Rücker,
B. Tillack, W. Winkler
2006 3rd International SiGe Technology and
Device Meeting, ISTDM 2006, Princeton,
May 15-17, 2006, USA
- (11) **Analytical Modeling of the Interaction of Vacancies and Oxygen for Oxide Precipitation in RTA Treated Silicon Wafers**
G. Kissinger, J. Dabrowski, A. Sattler,
C. Seuring, T. Müller, H. Richter, W. von Ammon
10th International Symposium on Silicon
Materials, Science, and Technology
(Semiconductor Silicon 2006), Denver,
May 07-12, 2006, USA
- (12) **Dislocations in Solar Silicon: Electrical Activity**
M. Kittler
Nordic Workshop on Crystalline Si Solar Cells,
Oslo, January 23-24, 2006, Norway
- (13) **IR-Emitter auf Si-Basis**
M. Kittler
ISF Hameln, Institutsseminar, Hameln,
November 21, 2006, Germany
- (14) **Regular Dislocation Networks in Silicon**
M. Kittler
SOITEC, Bernin, June 26, 2006, France
- (15) **Regular Dislocation Networks in Silicon as a Tool for Novel Device Application**
M. Kittler, M. Reiche, W. Seifert, X. Yu,
T. Arguirov, O.F. Vyvenko, T. Mchedlidze,
T. Wilhelm
210th ECS Meeting, Symposium ,High Purity
Silicon 9', Cancun,
October 29 - November 03, 2006, Mexico
- (16) **Silicon Nanostructures for IR Light Emitters**
M. Kittler, T. Arguirov, W. Seifert, X. Yu, G. Jia,
O.F. Vyvenko, T. Mchedlidze, M. Reiche,
T. Wilhelm, J. Sha, D. Yang
E-MRS Spring Meeting 2006, Symposium A:
Current Trends in Nanoscience, Nice,
May 29 - June 02, 2006, France
- (17) **Automatisierungstechnik**
R. Kraemer
BMBF-Workshop „Kommunikationstechnolo-
gien für das Internet der Dinge“, Köln,
September 22, 2006, Germany
- (18) **Car-to-Car-Kommunikation**
R. Kraemer
Technologietag Mitteldeutschland, Dresden,
November 08, 2006, Germany
- (19) **Gigabit Wireless Communication Based on Integrated 60 GHz BiCMOS Frontend**
R. Kraemer
1. Informatik-Kooperationsworkshop,
BTU Cottbus, October 20, 2006, Germany

- (20) **Kommunikations- und Sicherungsverfahren für eingebettete Systeme**
 R. Kraemer
 Symposium „Moderne Ausbildungsmethoden und Simulation“, Dresden, March 21 - 22, 2006, Germany
- (21) **Sensornetze im medizinischen Umfeld**
 R. Kraemer
 3rd Leibniz Conference of Advanced Science, Lichtenwalde, October 12 - 14, 2006, Germany
- (22) **Siliziumbasierte Mikroelektronik für die drahtlose Hochleistungskommunikation**
 R. Kraemer
 Fachtagung Mikroelektronik „Microelectronics on the Move!“ im Rahmen des VDE-Kongresses 2006, Aachen, October 24 - 25, 2006, Germany
- (23) **System and Circuit Research in IHP**
 R. Kraemer
 4th Joint Symposium on Opto- and Micro-electronic Devices and Circuits (SODC 2006), Duisburg, September 03 - 08, 2006, Germany
- (24) **Verfahren zur ultraschnellen drahtlosen Übertragung von Daten und deren Anwendungen**
 R. Kraemer
 Ringvorlesung „Das Internet und seine Anwendungen (IV)“, BTU Cottbus, May 09, 2006, Germany
- (25) **Advanced dielectrics for highly scaled DRAM applications: The example of $(\text{Pr}_2\text{O}_3)_{1-x}(\text{Al}_2\text{O}_3)_x$ mixed oxide systems on TiN**
 G. Lippert, H.-J. Müssig
 Infineon Workshop on Dielectric Materials for DRAM applications, Dresden, March 16, 2006, Germany
- (26) **PrAlO₃-Based M-I-M Structures for Advanced DRAM Applications**
 G. Lippert
- External Collaboration Workshop, Qimonda, Dresden, September 07, 2006, Germany
- (27) **Development of 0.13 μm Shallow Trench Etch Process**
 S. Marschmeyer
 AMAT Workshop Etch Customer Workshop, Dresden, May 10, 2006, Germany
- (28) **Rod-like Defects in Silicon: Signatures of Distinct RLD Structures Detected by Various Measurement Methods**
 T. Mchedlidze, T. Arguirov, G. Jia, M. Kittler
 International Conference on Extended Defects in Semiconductors, EDS 2006, Halle, September 17-22, 2006, Germany
- (29) **Nanoelectronics – a Major Driver for Ultra-high Integration and Ultra-high Speed Innovations**
 W. Mehr
 NNFC International Symposium on Nanotechnology, Daejeon City, March 2006, Republic of Korea
- (30) **Science to the Market – SiGe:C Technology and RF Circuits and Systems for Mobile Communication**
 W. Mehr
 Workshop From Research to Innovation, Szczecin, May 17-19, 2006, Poland
- (31) **SiGe BiCMOS Technologies for RF Mixed Signal Circuits-Technology, Design Kit and Circuit IPs**
 W. Mehr
 Mentor Workshop, Frankfurt/ Main, Oktober, 2006, Germany
- (32) **SiGe RF Mixed Signal Circuits and Technologies – New Developments and Perspectives (1 Gbit/s, LP Sensor Networks and Fiber Optics)**
 W. Mehr
 TFH Wildau, December, 2006, Germany

- (33) Atomically Controlled Processing for Future Si-Based Devices**
J. Murota, M. Sakuraba, B. Tillack
2006 Advanced Research Workshop Future Trends in Microelectronics: Up the Nano Creek, Crete, June 26-30, 2006, Greece
- (34) Welche Rolle spielen neue dielektrische Materialien in der Mikroelektronik?**
H.-J. Müssig
Akademisches Festkolloquium der BTU Cottbus, December 12, 2006, Germany
- (35) Dopant Diffusion in SiGeC Alloys**
H. Rücker, B. Heinemann, R. Kurps, Y. Yamamoto
2nd International SiGe & Ge: Materials, Processing, and Device Symposium, 210th ECS Meeting, Cancun, October 29 - November 03, 2006, Mexico
- (36) High-Performance Mixed-Signal ICs in SiGe BiCMOS Technology**
J.C. Scheytt, R. Kraemer
European Microwave Week 2006, Manchester, September 10, 2006, UK
- (37) IHP - Technologien und elektrische Möglichkeiten – Lösungen mit Analog Office**
R.F. Scholz
3. AWR Anwendertreffen, München, October 04, 2006, Germany
- (38) Advanced Dielectrics for Highly Performing and Functionalized Silicon Based ICs**
T. Schroeder
MINATEC Winter School Electrochemistry for the Semiconductor Industry, Grenoble, December 11, 2006, France
- (39) Global and Local Heteroepitaxy Approaches in Si-Based Microelectronics: Motivation, Methods and Materials**
T. Schroeder
Surface Science Seminar of the Physics Department of the University of Osnabrück, August, 18, 2006, Germany
- (40) Materials for Si-based Nanoelectronics – Discoveries and Challenges in Nanospace**
T. Schroeder
Hanse-Wissenschafts-Kolloquium, Delmenhorst, August 16, 2006, Germany
- (41) Single Crystalline Heteroepitaxial Semiconductor-Insulator-Semiconductor Systems on Si(111)**
T. Schroeder
ESRF Experimental Division Meeting, Grenoble, May 23, 2006, France
- (42) Ultra-Thin Dielectric Films for Si Based Nanoelectronic Device Technology**
T. Schroeder
5th International Workshop on Surfaces and Interfaces, University of Marseille, February 01-03, 2006, France
- (43) SoC Design: Engineering or Art**
Z. Stamenkovic
25th IEEE International Conference on Microelectronics, Nis, May 14-17, 2006, Serbia
- (44) Atomic Layer Processing for Future Micro- and Nanotechnology**
B. Tillack
System Construction of Global-Network-Oriented Information Electronics, Sendai, January 31 - February 01, 2006, Japan
- (45) SiGe:C BiCMOS Technologies for High Frequency Applications**
B. Tillack, B. Heinemann, D. Knoll, H. Rücker, G.G. Fischer, W. Winkler, W. Mehr
2nd International Workshop on New Group IV Semiconductor Nanoelectronics, Sendai, October 02, 2006, Japan

(46) SiGe:C BiCMOS Technologies for High Speed Applications

B. Tillack
ETRI, Daejeon,
March 16, 2006, Republic of Korea

(47) SiGe:C BiCMOS Technologies for High Speed Applications

B. Tillack
NTU – National Taiwan University,
March 21, 2006, Taiwan

(48) SiGe:C BiCMOS Technologies for High Speed Applications

B. Tillack
Nagoya University, Nagoya,
December 16, 2006, Japan

(49) The Running 0.25 μm Technology as the 0.13 μm BiCMOS, which is under Development

B. Tillack
CIC – Chip implementation Center Taiwan,
March 20, 2006, Taiwan

(50) Millimeter-wave Integrated Circuits in SiGe:C BiCMOS Technology

W. Winkler
UMC Taiwan, March 21, 2006, Hsinchu, Taiwan

(51) Millimeter-wave Integrated Circuits in SiGe:C BiCMOS Technology

W. Winkler
TSMC, Hsinchu, March 20, 2006, Taiwan

(52) Millimeter-wave Integrated Circuits in SiGe:C BiCMOS Technology

W. Winkler
National Taiwan University, Taipei,
March 21, 2006, Taiwan

(53) Millimeter-wave Integrated Circuits in SiGe:C BiCMOS Technology

W. Winkler
Chip Implementation Center Taipei,
March 20, 2006, Taiwan

**Vorträge
Presentations****(1) Determination of Low Concentrations of N and C in CZ-Si by Precise FTIR Spectroscopy**

V.D. Akhmetov, H. Richter, N. Inoue
E-MRS 2006 Spring Meeting, Nice,
May 29 - June 02, 2006, France

(2) Determination of Nitrogen in Thin CZ-SI Wafers by Means of High Sensitive FTIR Spectroscopy

V.D. Akhmetov, H. Richter
All-Russian Meeting „Silicon 2006“,
Krasnojarsk, July 04-06, 2006, Russia

(3) FTIR-Messungen an MQW

V.D. Akhmetov
BMBF-Projekt-Treffen „Bandstrukturdesign:
Ladungsträgertransport in Si-basierten
Quantenstrukturen für zukünftige
Höchsteffizienz-Solarzellen“, Cottbus,
October 18- 20, 2006, Germany

(4) IR Spectroscopy of Carbon and Boron States in Highly Doped SiGe:C(B) Layers

V.D. Akhmetov, H. Richter
All-Russian Meeting „Silicon 2006“,
Krasnojarsk, July 04-06, 2006, Russia

(5) Nitrogen in Thin Silicon Wafers Determined by Vibrational FTIR Spectroscopy with Enhanced Sensitivity

V.D. Akhmetov, H. Richter
44. Arbeitskreis „Punktdefekte“ Combined
with CADRES Expert Group Meeting, Dresden,
March 23-25, 2006, Germany

(6) Precise FTIR Spectroscopy of Carbon and Boron in Thin SiGe:C(B) Layers

V.D. Akhmetov, H. Richter
44. Arbeitskreis „Punktdefekte“ Combined
with CADRES Expert Group Meeting, Dresden,
March 23-25, 2006, Germany

- (7) **Practical Scalable and Statistical Modeling of SiGe HBT's**
 B. Ardouin, R.F. Scholz, G.G. Fischer, D. Knoll
 HICUM Workshop 2006, Heilbronn,
 June 12, 2006, Germany
- (8) **Effect of Mechanical Stress in Nanocrystalline Si/SiO₂ Multiple Quantum Wells**
 T. Arguirov, T. Mchedlidze, M. Kittler, R. Rölver,
 M. Först, O. Winkler, B. Spangenberg
 International Conference on Extended Defects
 in Semiconductors, EDS 2006, Halle,
 September 17-22, 2006, Germany
- (9) **Photoluminescence Study on Defects in Multicrystalline Silicon**
 T. Arguirov, G. Jia, W. Seifert, M. Kittler
 International Conference on Beam Injection
 Assessment of Microstructures in Semiconduc-
 tors (BIAMS 2006), St. Petersburg,
 June 11-15, 2006, Russia
- (10) **Raman-Untersuchungen von mechanischen Spannungen in MQW**
 T. Arguirov, T. Mchedlidze, M. Kittler
 BMBF-Projekt-Treffen „Bandstrukturdesign:
 Ladungsträgertransport in Si-basierten
 Quantenstrukturen für zukünftige Höchst-
 effizienz-Solarzellen“, Cottbus,
 October 18- 20, 2006, Germany
- (11) **Towards Silicon Based Light Emitters Utilising the Radiation from Dislocation Networks**
 T. Arguirov, M. Kittler, W. Seifert, X. Yu
 E-MRS Spring Meeting 2006, Nice,
 May 29 - June 02, 2006, France
- (12) **ARC and Swing Optimization for High-NA Photolithography**
 J. Bauer
 4th IISB Lithography Simulation Workshop,
 Hersbruck, September 29, 2006, Germany
- (13) **Optimization of Anti-reflective Coatings for High NA Lithography**
 J. Bauer, O. Fursenko, S. Virko, B. Kuck,
 T. Grabolla, V. Melnik, W. Mehr
 4th Workshop Ellipsometry, Berlin,
 February 20-22, 2006, Germany
- (14) **Swing Curve Measurement and Simulation for High NA Lithography**
 J. Bauer, U. Haak, K. Schulz, G. Old, A. Kraft
 SPIE International Symposium on Microlitho-
 graphy 2006, San Jose,
 February 19-24 2006, USA
- (15) **Beiträge der Materialforschung für die Entwicklung der Fotovoltaik**
 M. Birkholz
 Lehrprobenvortrag im Habilitationsverfahren
 an der BTU Cottbus, June 28, 2006, Germany
- (16) **GID and GISAXS Characterization of Biomolecules on Semiconductors**
 M. Birkholz, I. Zizak, N. Darowski, I. Wallat,
 P. Zaumseil, M. Kittler, M. P. Heyn
 Bessy Nutzertreffen, Berlin,
 December 07-08, 2006, Germany
- (17) **Small-Angle X-Ray Reciprocal Space Mapping of Surface Relief Gratings**
 M. Birkholz, P. Zaumseil, J. Bauer, D. Bolze,
 G. Weidner
 E-MRS Spring Meeting, Nice,
 May 29 - June 02, 2006, France
- (18) **Structure of Biomembrane-on-Silicon Hybrids Derived From X-Ray Reflectometry**
 M. Birkholz, P. Zaumseil, M. Kittler, I. Wallat,
 M. Heyn
 E-MRS 2006 Spring Meeting, Nice,
 May 29 - June 02, 2006, France
- (19) **The Evolution of Structural Properties During the Growth of Thin Films**
 M. Birkholz

- Wissenschaftlicher Vortrag im Habilitationsverfahren an der BTU Cottbus, November 24, 2006, Germany
- (20) A 20 GSAMPLE/s, 40 mW SiGe HBT Comparator for Ultra-High-Speed ADC**
Y. Borokhovych, H. Gustat
2nd International SiGe & Ge: Materials, Processing, and Device Symposium, 210th ECS Meeting, Cancun, October 29 - November 03, 2006, Mexico
- (21) Ab Initio Atomistic Calculations for CMOS Technology Development**
J. Dabrowski
5th International Summerschool at IHP, Frankfurt (Oder), August 28 - September 02, 2006, Germany
- (22) Ab Initio Calculations for CMOS Technology Developments**
J. Dabrowski
Workshop From Research to Innovation, Szczecin, May 17-19, 2006, Poland
- (23) Charge States of Native Point Defects in Pr-Based High-k Dielectrics**
J. Dabrowski, A. Fleszar, G. Lupina, G. Lippert, A.U. Mane, Ch. Wenger
DPG Frühjahrstagung Dresden, March 27-31, 2006, Germany
- (24) Ti at Interfaces Between Si and High-k Films**
J. Dabrowski
DPG Frühjahrstagung Dresden, March 27-31, 2006, Germany
- (25) An Ultra-Wideband Low Power Consumption Differential Low Noise Amplifier in SiGe:C BiCMOS Technology**
P.K. Datta, G. Fischer
IEEE Radio and Wireless Symposium, RWS 2006, San Diego, January 17-19, 2006, USA
- (26) An Ultra-Wideband Transceiver Front-End in SiGe:C BiCMOS Technology**
P.K. Datta, X. Fan, G. Fischer
2006 International Conference on Ultra-Wideband, Waltham, September 24-27, 2006, USA
- (27) A Wireless Communication Platform for Long-Term Health Monitoring**
D. Dietterle, G. Wagenknecht, J.-P. Ebert, R. Kraemer
1st IEEE International Workshop on Pervasive and Ubiquitous Health Care (UbiCare 2006), Pisa, March 13, 2006, Italy
- (28) Design of a Wireless Communication Platform for Body Area Networks**
D. Dietterle, G. Wang, J.-P. Ebert, R. Kraemer
WWRF 16, Shanghai, April 26-28, 2006, China
- (29) BASUMA - A Body Sensor System for Telemedicine**
J.-P. Ebert, T. Falck
3rd European Workshop on Wireless Sensor Networks (EWSN), Zurich, February 13-15, 2006, Switzerland
- (30) Leakage Current and Dopant Activation in Ultra-Shallow Junctions Following Millisecond Anneals Measured by Non-Contact Junction Photo-Voltage Methods**
V.N. Faifer, T.M.H. Wong, M.I. Curent, D.K. Schroder, P.J. Timans, S. McCoy, J. Gelpey, W. Lerch, S. Paul, D. Bolze, T. Claryssee, T. Zangerle, A. Moussa, W. Vandervorst
American Vacuum Society 53rd International Symposium, San Francisco, November 12-17, 2006, USA
- (31) BASUMA - The Sixth Sense for Chronically III Patients**
T. Falck, J. Espina, J.-P. Ebert, D. Dietterle
Body Sensor Networks, Cambridge, April 03-05, 2006, USA

- (32) **An Integrated Gaussian Modulated Pulse Generator for Ultra-Wideband Wireless Localization System**
 X. Fan
 Joint China Japan Microwave Conference 2006, Chengdu, August 24, 2006, China
- (33) **Contamination during High Temperature Treatments in SiC Reactor Tubes**
 A. Fischer, V. Akhmetov, G. Kissinger, M. Kittler
 SIWEDS Fall Meeting, Cancun, November 02-03, 2006, Mexico
- (34) **High Performance SiGe BiCMOS Technology for High Frequency Applications**
 G.G. Fischer
 36th European Microwave Conference 2006, Manchester, September 10-15, 2006, UK
- (35) **SiGe:C BiCMOS Technologie für 77 GHz Radaranwendungen**
 G.G. Fischer
 ITG / BMBF Statusseminar „Automobile Radarsensorik für Fahrerassistenzsysteme“, VDE Kongress Aachen, October 24, 2006, Germany
- (36) **SiGe:C BiCMOS Technologies for RF Automotive Application**
 G.G. Fischer
 5th International Summerschool at IHP, Frankfurt (Oder), August 28 - September 02, 2006, Germany
- (37) **SiGe:C BiCMOS-Technologien für Mikroelektronik-Anwendungen über 60 GHz**
 G.G. Fischer
 GMM-Workshop Mikroelektronik-Anwendungen, Duisburg, January 23, 2006, Germany
- (38) **UWB Transceiver for Data Communication and Indoor Localization**
 G. Fischer
 36th European Microwave Conference 2006, Manchester, September 10-15, 2006, UK
- (39) **Electron-Holographic Measurement of “Dead Layer” Thickness, Amorphous Surface Layer Thickness, Noise, and Inelastic Mean Free Path in Silicon Specimens prepared by Argon Milling and FIB**
 P. Formanek
 The 16th International Microscopy Congress (IMC 16), Sapporo, September 03-08, 2006, Japan
- (40) **Development and Characterization of a Process Technology for a 0.25 µm SiGe:C RF-BiCMOS embedded Flash Memory**
 A. Fox
 5th International Summerschool at IHP, Frankfurt (Oder), August 28 - September 02, 2006, Germany
- (41) **Combination of Spectroscopic Ellipsometry and Reflectometry for Characterization of Ni Silicide Process**
 O. Fursenko, D. Bolze, I. Costina, P. Zaumseil, T. Huelsmann, W. Lerch
 4th Workshop Ellipsometry, Berlin, February 20-22, 2006, Germany
- (42) **Vollkostenrechnung im IHP**
 U. George
 Workshop Finanzielle und rechtliche Aspekte bei EU Projekten im 6. und 7. Forschungsrahmenprogramm, Dresden, November 02, 2006, Germany
- (43) **A Broadband Low Spur Fully Integrated BiCMOS PLL for 60 GHz Wireless Applications**
 S. Glisic, W. Winkler
 IEEE Radio and Wireless Symposium – RWS 2006, San Diego, January 17-19, 2006, USA
- (44) **SiGe ICs for the 77 GHz Automotive Radar**
 S. Glisic
 EEEFCOM Workshop, Hochfrequenztechnik, Komponenten, Module und EMV, Ulm, June 27-29, 2006, Germany

- (45) **60 GHz Demonstrator in 0.25 μm SiGe:C BiCMOS Technology**
 E. Grass, M. Piz, F. Herzel, K. Schmalz, Y. Sun, S. Glisic, K. Tittelbach-Helmrich
 IEEE 802.15 Meeting, San Diego, July 2006, USA
- (46) **60 GHz OFDM Demonstrator in SiGe BiCMOS Technology**
 E. Grass, M. Piz, F. Herzel, K. Schmalz, Y. Sun, S. Glisic, K. Tittelbach-Helmrich, M. Krstic, M. Ehrig, R. Kraemer, J.C. Scheytt
 BMBF Statusseminar 2006, Mobile Kommunikation und GaN-Elektronik, Fraunhofer Institut für Integrierte Schaltungen – IIS, Erlangen, June 21-22, 2006, Germany
- (47) **Protocol Integration of 60 GHz PHY**
 E. Grass, K. Tittelbach-Helmrich, D. Dietterle, J.-P. Ebert, R. Kraemer
 IEEE 802.15 Meeting, Denver, March, 2006, USA
- (48) **Scalable Low-Power High-Speed BiCMOS ECL Library**
 H. Gustat, G. Kell
 36th European Microwave Conference 2006, Manchester, September 10-15, 2006, UK
- (49) **Ultra-High Speed A/D and D/A Converters**
 H. Gustat
 36th European Microwave Conference 2006, Manchester, September 10-15, 2006, UK
- (50) **A 10 GS/s 2 V_{pp} Emitter Follower Only Track and Hold Amplifier in SiGe BiCMOS Technology**
 S. Halder, S.A. Osmany, H. Gustat, B. Heinemann
 IEEE International Symposium on Circuit and Systems 2006 (ISCAS 2006), Island of Kos, May 21-24, 2006, Greece
- (51) **An 8 Bit 10 GS/s 2 V_{pp} Track and Hold Amplifier in SiGe BiCMOS Technology**
 S. Halder, H. Gustat, J.C. Scheytt
 ESSCIRC 2006, Montreux, September 18-22, 2006, Switzerland
- (52) **Si-Bauelemente am IHP - von Hochfrequenz- und Hochvolttransistoren zum VLSI-Schaltkreis**
 B. Heinemann
 Festkolloquium „40 Jahre Forschung für die Siliziumelektronik“, Frankfurt (Oder), April 10, 2006, Germany
- (53) **60 GHz RF-Frontend for 1 GBit/s WLAN Transceiver**
 F. Herzel
 36th European Microwave Conference 2006, Manchester, September 10-15, 2006, UK
- (54) **60 GHz Transceiver Analog Frontend**
 F. Herzel
 German-Korean Workshop on Nanotechnology NNFC - IHP, Frankfurt (Oder), February 14-15, 2006, Germany
- (55) **Creation of SiGe Radhard Library**
 H.-V. Heyer, U. Jagdhold
 1st International Workshop on Analog and Mixed Signal Integrated Circuits for Space Applications, AMICSA 2006, Xanthi, October 02-03, 2006, Greece
- (56) **European Low Noise Local Oscillator MMIC in SiGe Technology at 10 GHz and 18.3 GHz: the SiMs Project**
 H.-V. Heyer, R. Follmann, D. Köther, K. Schmalz, F. Herzel, W. Winkler, J. Nilsson, B.-M. Folio, B. Glass
 Microwave Technology and Techniques Workshop Enabling Future Space Systems, Estec, Noordwijk, May 15-16, 2006, The Netherlands
- (57) **Impact of Ni Layer Thickness and Anneal Time on Nickel Silicide Formation by Rapid Thermal Processing**
 T. Huelsmann, J. Niess, W. Lerch, O. Fursenko, D. Bolze
 RTP 2006-14th IEEE International Conference

- on Advanced Thermal Processing of Semiconductors, Kyoto, October 10-13, 2006, Japan
- (58) Infrared Absorption Measurement of Carbon Concentration in Silicon Crystals**
N. Inoue, M. Nakatsu, V. D. Akhmetov
ECS 10th International Symposium on Silicon Materials Science and Technology, Denver, May 07-12, 2006, USA
- (59) Einführung in das digitale VLSI-Design**
U. Jagdhold
Fachhochschule Lausitz, Senftenberg, December 20, 2006, Germany
- (60) Radiation Hardness**
U. Jagdhold
5th Workshop High-Performance SiGe BiCMOS for Wireless and Broadband Communication, Frankfurt (Oder), September 25-26, 2006, Germany
- (61) Cathodoluminescence Investigation of Silicon Nanowires**
G. Jia, T. Arguirov, M. Kittler, Z. Su, D. Yang, J. Sha
44. Arbeitskreis Punktdefekte Combined with CADRES Expert Group Meeting, Dresden, March 23-25, 2006, Germany
- (62) Cathodoluminescence Investigation on Silicon Nanowires Fabricated by Thermal Evaporation of SiO**
G. Jia, T. Arguirov, M. Kittler, Z. Su, D. Yang, J. Sha
International Conference on Beam Injection Assessment of Microstructures in Semiconductors (BIAMS 2006), St. Petersburg, June 11-15, 2006, Russia
- (63) Luminescence of Silicon Nanowires**
G. Jia, T. Arguirov, M. Kittler, D. Yang, J. Sha
International Conference on Extended Defects in Semiconductors 2006 (EDS 2006), Halle, September 17-22, 2006, Germany
- (64) Defect Studies in Si_{1-x}Ge_x Alloys and Si/Si_{1-x-y}Ge_xC_y Multilayers**
S. Kalem, E.V. Lavrov, G. Kissinger, Y. Zhang, A.N. Larsen, H. Radamson, J. Weber
2nd CADRES Workshop, Kalyves, September 08-11, 2006, Greece
- (65) Innovative Mikroelektronik am IHP – von Ideen bis zu optimierten Prozessen**
W. Kissinger
Tagung der Kommission Operations Research des Verbandes der Hochschullehrer für Betriebswirtschaft e.V. und der Deutschen Gesellschaft für Operations Research, Europa-Universität Viadrina, Frankfurt (Oder), February 10, 2006, Germany
- (66) Interaction of Vacancies and Oxygen for Oxide Precipitation in RTA Treated Silicon Wafers**
G. Kissinger, J. Dabrowski, A. Sattler, C. Seuring, T. Müller, W. von Ammon
E-MRS Spring Meeting 2006, Symposium V: Advanced Silicon for the 21st Century, Nice, May 29 - June 02, 2006, France
- (67) Nanoelectronics and Ultrafast Communications Technology R&D at the IHP**
W. Kissinger
Workshop „Future Developments in Organic Electronics and Photonics“, TFH Wildau, June 27, 2006, Germany
- (68) Oxide Precipitation via Coherent “Seed”-Oxide Phases**
G. Kissinger, J. Dabrowski
High Purity Silicon IX, 210th ECS Meeting, Cancun, October 29 - November 03, 2006, Mexico
- (69) Oxide Precipitation via Coherent “Seed”-Oxide Phases**
G. Kissinger, J. Dabrowski
2nd CADRES Workshop, Kalyves, September 08-11, 2006, Greece

- (70) **1.5 μm Emission from a Silicon MOS-LED Based on a Dislocation Network**
 M. Kittler, M. Reiche, X. Yu, T. Arguirov,
 O. Vyvenko, W. Seifert, T. Mchedlidze, G. Jia,
 T. Wilhelm
 2006 IEEE International Electron Device
 Meeting, IEDM 2006, San Francisco,
 December 11-13 2006, USA
- (71) **Light Emitters Based on Silicon Nanostructures**
 M. Kittler
 German-Korean Workshop on Nanotechnology
 NNFC - IHP, Frankfurt (Oder),
 February 14-15, 2006, Germany
- (72) **A Low-Cost, High-Performance, High-Voltage Complementary BiCMOS Process**
 D. Knoll, B. Heinemann, K.-E. Ehwald, A. Fox,
 H. Rücker, R. Barth, D. Bolze, T. Grabolla,
 U. Haak, J. Drews, B. Kuck, S. Marschmeyer,
 H.H. Richter, M. Chaimanee, O. Fursenko,
 P. Schley, B. Tillack, K. Köpke, Y. Yamamoto,
 E. Wulf, D. Wolansky
 2006 IEEE International Electron Device
 Meeting, IEDM 2006, San Francisco,
 December 11-13, 2006, USA
- (73) **IHP's 0.25 μm BiCMOS Technologies**
 D. Knoll
 5th Workshop High-Performance SiGe BiCMOS
 for Wireless and Broadband Communication,
 Frankfurt (Oder),
 September 25-26, 2006, Germany
- (74) **Extraction of CTH with Pulsed Measurements**
 F. Korndörfer
 Bipolar Arbeitskreis, Erfurt,
 October 27, 2006, Germany
- (75) **60 GHz Communication Systems**
 R. Kraemer, E. Grass
 Wireless World Research Forum Meeting 17,
 Heidelberg, November 15-17, 2006, Germany
- (76) **An Integrated 60 GHz Transceiver Front-End for OFDM in SiGe: BiCMOS**
 R. Kraemer, Y. Sun, S. Glisic, M. Piz, F. Herzel,
 K. Schmalz, E. Grass, W. Winkler, J.C. Scheytt
 4th Joint Symposium on Opto- and Microelec-
 tronic Devices and Circuits (SODC 2006),
 Duisburg, September 03 -08, 2006, Germany
- (77) **Drahtlose Kommunikation in eingebetteten Automobilsystemen - Stand und Vision der Funktechnik für den Einsatz in Fahrzeugen**
 R. Kraemer
 8. Kongress Wireless Technologies, Dortmund,
 September 27-28, 2006, Germany
- (78) **Herausforderungen der Car-to-Car-Kommunikation**
 R. Kraemer
 2. Wirtschaftstreffen „IHP trifft Automotive“,
 Frankfurt (Oder), April 19, 2006, Germany
- (79) **IHP Innovations and Research in Wireless Systems**
 R. Kraemer
 5th International Summerschool at IHP,
 Frankfurt (Oder),
 August 28 - September 02, 2006, Germany
- (80) **IHP Systems Circuits**
 R. Kraemer
 German-Korean Workshop on Nanotechnology
 NNFC - IHP, Frankfurt (Oder),
 February 14-15, 2006, Germany
- (81) **IHP meets Automotive**
 R. Kraemer
 2. Wirtschaftstreffen „IHP trifft Automotive“,
 Frankfurt (Oder), April 19, 2006, Germany
- (82) **UWB Transceiver for Data Communication and Indoor Localization**
 R. Kraemer, G. Fischer
 WWRF 16, Shanghai, April 26-28, 2006, China

- (83) Asynchronous and Synchronous Design Methods for Communication Systems and Applications**
 M. Krstic
 1st International Conference for Young Researchers in Computer Science, Control, Electrical Engineering and Telecommunications, ICYR 2006, Zielona Gora, September 08, 2006, Poland
 Frankfurt (Oder),
 August 28 - September 02, 2006, Germany
- (84) A Graphical Tool for Specification, Rapid Prototyping and Implementation of Location Based Services**
 P. Langendörfer, S. Adam
 Innovations for Europe Mobility, ITG-Fachtagung im Rahmen des VDE-Kongresses 2006, Aachen, October 23-24, 2006, Germany
- (85) Efficient Protection of Mobile Devices by Cross Layer Interaction of Firewall Approaches**
 P. Langendörfer, M. Lehmann, K. Piotrowski
 4th International Conference on Wired/Wireless Internet Communications (WWIC 2006), Bern, May 10-12, 2006, Switzerland
- (86) Interface Reactions between High K Praseodymium Aluminate and TiN**
 G. Lippert, J. Dabrowski, I. Costina, G. Lupina, V. Melnik, L. Oberbeck, U. Schröder, T. Schroeder, Ch. Wenger, P. Zaumseil, H.-J. Müssig
 E-MRS Spring Meeting 2006, Symposium L: Characterization of High-k Dielectric Materials, Nice, May 29 - June 02, 2006, France
- (87) Innovative Materials: Key to Advances in Microelectronics**
 G. Lupina
 Workshop From Research to Innovation, Szczecin, May 17-19, 2006, Poland
- (88) Modern CMOS Transistor Physics**
 G. Lupina
 5th International Summerschool at IHP, Frankfurt (Oder),
 August 28 - September 02, 2006, Germany
- (89) Praseodymium Silicate High-k Dielectric Layers on Si(100)**
 G. Lupina, T. Schroeder, J. Dabrowski, Ch. Wenger, A.U. Mane, G. Lippert, H.-J. Müssig
 DPG Frühjahrstagung Dresden, March 27-31, 2006, Germany
- (90) Praseodymium Silicate High-k Dielectrics**
 G. Lupina, T. Schroeder, Ch. Wenger, H.-J. Müssig
 E-MRS IUMRS ICEM Spring Meeting 2006, Nice, May 29 - June 02, 2006, France
- (91) Praseodymium Silicate High-k Dielectrics for CMOS Gate Dielectric Applications**
 G. Lupina, T. Schroeder, Ch. Wenger, J. Dabrowski, D. Schmeißer, H.-J. Müssig
 Junior Euromat 2006, Lausanne, September 04-08, 2006, Switzerland
- (92) NEPP: Negotiation Enhancements for Privacy Policies**
 M. Maaser, S. Ortmann, P. Langendörfer
 W3C Workshop on Languages for Privacy Policy Negotiation and Semantics-Driven Enforcement, Ispra, October 17-18, 2006, Italy
- (93) On the Implementation of a Low-Power IEEE 802.11a Compliant Viterbi Decoder**
 K. Maharatna, A. Troya, M. Krstic, E. Grass
 VLSI Design Conference, Hyderabad, January 03-07, 2006, India
- (94) Atomic Vapour Deposition of High-k HfO₂: Growth Kinetics and Electrical Properties**
 A.U. Mane, Ch. Wenger, J. Dabrowski, G. Lupina, T. Schroeder, G. Lippert, R. Sorge, P. Zaumseil, G. Weidner, I. Costina, H.-J. Müssig, S. Pasko, U. Weber, V. Méric, M. Schumacher
 DPG Frühjahrstagung Dresden, March 27-31, 2006, Germany

- (95) IHP ADS and Catena Design Kits**
 T. Mausolf
 5th Workshop High-Performance SiGe BiCMOS for Wireless and Broadband Communication, Frankfurt (Oder), September 25-26, 2006, Germany
- (96) An Optical Indoor Positioning System for the Mass Market**
 O. Maye, J. Schäffner, M. Maaser
 3rd Workshop on Positioning, Navigation and Communication - WPNC 2006, Hannover, March 16, 2006, Germany
- (97) Effect of Various Substrates and Various Heat Treatments on Crystallinity of Si Layers in MQW Structures**
 T. Mchedlidze, T. Arguirov, S. Kouteva-Arguirova, G. Jia, M. Kittler
 BMBF-Projekt-Treffen „Bandstrukturdesign: Ladungsträgertransport in Si-basierten Quantenstrukturen für zukünftige Höchst-effizienz-Solarzellen“, Cottbus, October 18- 20, 2006, Germany
- (98) Electro- and Photoluminescence from B and Si Implanted p-n Junctions**
 T. Mchedlidze, T. Arguirov, M. Kittler
 Seminar University of Twente, Enschede, October 04, 2006, The Netherlands
- (99) Fe-P Complexes in n-Si**
 T. Mchedlidze, M. Kittler
 44. Arbeitskreis Punktdefekte Combined with CADRES Expert Group Meeting, Dresden, March 23-25, 2006, Germany
- (100) Structural and Optical Properties of Si/SiO₂ Multi-Quantum Wells**
 T. Mchedlidze, T. Arguirov, M. Kittler, R. Rölver, B. Berghoff, M. Först, B. Spangenberg
 E-MRS 2006, Symposium C, Nice, May 29 - June 02, 2006, France
- (101) High-Performance SiGe BiCMOS for Wireless and Broadband Communication and Tutorial IHP Design Kits**
 W. Mehr
 5th Workshop High-Performance SiGe BiCMOS for Wireless and Broadband Communication, Frankfurt (Oder), September 25-26, 2006, Germany
- (102) Technologies and Circuits for Wireless Communication**
 W. Mehr
 5th International Summerschool at IHP, Frankfurt (Oder), August 28 - September 02, 2006, Germany
- (103) A Complementary RF-LDMOS Architecture Compatible with 0.13 μm CMOS Technology**
 N. Mohapatra, H. Rücker, K.E. Ehwald, R. Sorge, R. Barth, P. Schley, D. Schmidt, H.E. Wulf
 18th International Symposium on Power Semiconductor Devices and ICs (ISPSD 2006), Napoli, June 04-08, 2006, Italy
- (104) High-k Dielectrics and Examples of Application**
 H.-J. Müssig
 German-Korean Workshop on Nanotechnology NNFC – IHP, Frankfurt (Oder), February 14-15, 2006, Germany
- (105) Phase Noise and Jitter Modeling for Fractional-N PLLs**
 S.A. Osmany, F. Herzel, K. Schmalz, W. Winkler
 „Integrierte digitale und analoge Schaltungen“ - Kleinheubacher Tagung, September 25-29, 2006, Germany
- (106) Spike and Flash Annealing of Shallow Arsenic and Phosphorus Implants in Different Gaseous Ambient**
 S. Paul, W. Lerch, S. McCoy, J. Gelpy, D. Bolze
 16th International Conference in Ion Implantation Technology IIT – 2006, Marseille, June 11-16, 2006, France

- (107) 60 GHz Channel Measurements for "Video Supply in Trains, Busses and Aircraft" Scenario**
 M. Peter, W. Keusgen, E. Grass
 IEEE 802.15 Meeting, Dallas,
 November 14, 2006, USA
- (108) How Public Key Cryptography Influences Wireless Sensor Node Lifetime**
 K. Piotrowski, P. Langendörfer, S. Peter
 4th ACM Workshop on Security of Ad Hoc and Sensor Networks (SASN 2006), Alexandria,
 October 30, 2006, USA
- (109) A Simple OFDM Physical Layer for Short-Range High Data Rate Transmission at 60 GHz**
 M. Piz, E. Grass
 11th International OFDM Workshop (InOWo '06)
 Hamburg, August 31, 2006, Germany
- (110) Quantum Effects in Si Nanocrystals Embedded in Oxide or Amorphous Matrix**
 P.N. Racec
 BMBF-Projekt-Treffen „Bandstrukturdesign: Ladungsträgertransport in Si-basierten Quantenstrukturen für zukünftige Höchst-effizienz-Solarzellen“, Cottbus,
 October 18-20, 2006, Germany
- (111) Si/SiGe Double Barrier Resonant Tunneling Diodes**
 P.N. Racec, E.R. Racec, U. Wulf, G. Kissinger, H. Richter
 1st Leibnitz Conference of Advanced Science, Nanoscience 2005, Lichtenwalde,
 October 06-08, 2006, Germany
- (112) On the Reliability of Scanning Probe Based Electrostatic Force Measurements**
 M. Ratzke, J. Reif
 E-MRS 2006, Symposium F, Nice,
 May 29 - June 02, 2006, France
- (113) Scanning Probe Based Electrical Characterization of Dislocation Networks Formed by Wafer Direct Bonding**
 M. Ratzke, O. Vyvenko, X. Yu, J. Reif, M. Kittler, M. Reiche
 International Conference on Extended Defects in Semiconductors 2006 (EDS 2006), Halle,
 September 17-22, 2006, Germany
- (114) Light Emission by Dislocations in Silicon**
 M. Reiche, M. Kittler, T. Wilhelm, T. Arguirov, W. Seifert, X. Yu
 LEOS 2006, 19th Annual Meeting of the IEEE Lasers and Electro-Optics Society, Montreal,
 October 29 - November 02, 2006, Canada
- (115) Electrical Properties of Laser-Ablation-Initiated Self-Organized Nanostructures on Silicon Surface**
 J. Reif, M. Ratzke, O. Varlamova, F. Costache
 E-MRS 2006, Symposium V, Nice,
 May 29 - June 02, 2006, France
- (116) Carbon Plasma Etching in Advanced Semiconductor Technologies**
 H.H. Richter, K.A. Pears, M. Markert, S. Marschmeyer, S. Günther, G. Weidner, H. Silz
 DPG Frühjahrstagung Augsburg,
 March 27-30, 2006, Germany
- (117) 0.13 μm BiCMOS Development**
 H. Rücker
 5th Workshop High-Performance SiGe BiCMOS for Wireless and Broadband Communication, Frankfurt (Oder),
 September 25-26, 2006, Germany
- (118) SiGe BiCMOS Technology**
 H. Rücker
 German-Korean Workshop on Nanotechnology NNFC - IHP, Frankfurt (Oder),
 February 14-15, 2006, Germany

- (119) Technologies for Radio Frequency Applications**
 H. Rücker
 5th International Summerschool at IHP,
 Frankfurt (Oder),
 August 28 - September 02, 2006, Germany
- (120) 60 GHz SiGe Transceiver Frontend-ICs für die drahtlose Nahfeldkommunikation**
 J.C. Scheytt, Y. Sun, S. Glisic, F. Herzel,
 K. Schmalz, E. Grass, W. Winkler, R. Kraemer
 EEEfCOM Workshop, Hochfrequenztechnik,
 Komponenten, Module und EMV, Ulm,
 June 27-29, 2006, Germany
- (121) Frequenzagiler Synthesizer und effizienter Leistungsverstärker für Multi-Standard Basisstationen**
 J.C. Scheytt
 BMBF Statusseminar 2006 in Erlangen,
 June 20-22, 2006, Germany
- (122) RF Circuit Design at IHP**
 J.C. Scheytt
 5th Workshop High-Performance SiGe BiCMOS
 for Wireless and Broadband Communication,
 Frankfurt (Oder),
 September 25-26, 2006, Germany
- (123) E-Test Measurements for BiCMOS and Flash Technologies - Experiences and Problems**
 P. Schley, A. Fox, B. Heinemann, D. Knoll,
 H. Rücker
 Keithley User Meeting, Prague,
 October 08, 2006, Czech Republic
- (124) An Integrated 5 GHz Wideband Quadrature Modem in SiGe:C BiCMOS Technology**
 K. Schmalz, F. Herzel, M. Piz
 36th European Microwave Conference 2006,
 Manchester, September 10-15, 2006, UK
- (125) Cadence Design Kit and MPW Service**
 R.F. Scholz
 5th Workshop High-Performance SiGe BiCMOS
 for Wireless and Broadband Communication,
 Frankfurt (Oder),
 September 25-26, 2006, Germany
- (126) Design Kit & Multi Project Wafer Service**
 R.F. Scholz
 German-Korean Workshop on Nanotechnology
 NNFC - IHP, Frankfurt (Oder),
 February 14-15, 2006, Germany
- (127) Heteroepitaxial $(Pr_2O_3)_{1-x}(Y_2O_3)_x$ Mixed Oxide Systems on Si Substrates as Buffer Layers for the Preparation of High -Quality Single Crystalline Layer Systems**
 T. Schroeder, H.-J. Müssig
 Project Review Siltronic, Burghausen,
 February, 2006, Germany
- (128) On the Epitaxy of Twin-free Cubic (111) Praseodymium Sesquioxide Films on Si(111)**
 T. Schroeder, Ch. Wenger, H.-J. Müssig
 DPG Frühjahrstagung Dresden,
 March 27-31, 2006, Germany
- (129) Oxide Engineering and Lattice Matching Approaches for the Preparation of Single Crystalline Semiconductor-Insulator-Semiconductor Systems**
 T. Schroeder
 Materials Science Seminar of TU Dresden,
 October 07, 2006, Germany
- (130) Physics of Metal-Oxide-Semiconductor (MOS) Structures**
 T. Schroeder
 5th International Summerschool at IHP,
 Frankfurt (Oder),
 August 28 - September 02, 2006, Germany
- (131) Studying the CMOS Process Compatibility of Praseodymium Silicate Layers on Si(001): Physical, Electrical, Thermal and Etching Properties**
 T. Schroeder, G. Lupina, Ch. Wenger, A.U. Mane,
 J. Dabrowski, H.-J. Müssig
 14th Workshop on Dielectrics in Microelectro-

- tics (WODIM), Catania,
June 26-28, 2006, Italy
- (132) An Implementation Study on Fault-Tolerant LEON-3 Processor System**
Z. Stamenkovic, C. Wolf, G. Schoof, J. Gaisler
IP-Based SoC Design Conference, Grenoble,
December 06-07, 2006, France
- (133) LEON-2: General Purpose Processor for a Wireless Engine**
Z. Stamenkovic, C. Wolf, G. Schoof, J. Gaisler
9th IEEE Workshop on Design and Diagnostics
of Electronic Circuits and Systems, Prague,
April 18-21, 2006, Czech Republic
- (134) A Fully Differential 60 GHz Receiver Front-End with Integrated PLL in SiGe:C BiCMOS**
Y. Sun, S. Glisic, F. Herzel
European Microwave Integrated Circuits
Conference 2006, Manchester,
September 10-15, 2006, UK
- (135) A Fully Differential 60 GHz Receiver Front-End with Integrated PLL in SiGe:C BiCMOS**
Y. Sun, S. Glisic, F. Herzel
5th Workshop High-Performance SiGe BiCMOS
for Wireless and Broadband Communication,
Frankfurt (Oder),
September 25-26, 2006, Germany
- (136) An Integrated 60 GHz Receiver Front-End in SiGe:C BiCMOS**
Y. Sun, L. Wang, J. Borngräber, F. Herzel,
W. Winkler, R. Kraemer
The 6th Topical Meeting on Silicon Monolithic
Integrated Circuits in RF Systems (SiRFIC)
2006, San Diego, January 18-20, 2006, USA
- (137) An Integrated 60 GHz Transceiver Front-End for OFDM in SiGe BiCMOS**
Y. Sun, S. Glisic, F. Herzel, K. Schmalz, E. Grass,
W. Winkler, R. Kraemer
WWRF 16, Shanghai, April 26-28, 2006, China
- (138) Standardization of Test Methods of Bulk Microdefects and Denuded Zone in Annealed CZ Si**
R. Takada, N. Inoue, K. Moriya, K. Kashima,
K. Nakashima, M. Kato, S. Kitagawa, T. Ono,
H. Uzushido, N. Nango and V. Akhmetov
ECS 10th International Symposium on Silicon
Materials Science and Technology, Denver,
May 07-12, 2006, USA
- (139) Development of SiGe BiCMOS Technologies at the IHP: Introduction**
B. Tillack
5th Workshop High-Performance SiGe BiCMOS
for Wireless and Broadband Communication,
Frankfurt (Oder),
September 25-26, 2006, Germany
- (140) NNFC - IHP Workshop: Introduction**
B. Tillack
German-Korean Workshop on Nanotechnology
NNFC - IHP, Frankfurt (Oder),
February 14-15, 2006, Germany
- (141) Design and Implementation of a QoS Capable WLAN Modem for IEEE 802.11a**
K. Tittelbach-Helmrich, G. Panic, D. Dietterle,
M. Krstic, J. Klatt, N. Fiebig, J. Lehmann
Workshop Quality-of-Service over Wireless
LANs for Converged Enterprise Networks,
Berlin, May 24, Germany
- (142) Bias Conditions in Gamma Radiation Assurance Tests of Bipolar Technologies for HEP Applications**
M. Ullan, S. Diez, F. Campabadal, M. Lozano,
G. Pellegrini, D. Knoll, B. Heinemann
2006 Nuclear Science Symposium, Medical
Imaging Conference and 15th International
Room Temperature Semiconductor Detector
Workshop, San Diego,
October 29 - November 04, 2006, USA
- (143) Gamma Radiation Effects on Three Different SiGe HBT Technologies**
M. Ullan, S. Diez, F. Campabadal, M. Lozano,

- G. Pellegrini, D. Knoll, B. Heinemann
RADECS 2006, Athens,
September 27-29, 2006, Greece
- (144) Interaction of Iron with Grown-in Dislocations in p-type Silicon: An EBIC / DLTS Study**
O. Vyvenko, M. Kittler, W. Seifert
International Conference on Extended Defects in Semiconductors, EDS 2006, Halle,
September 17-22, 2006, Germany
- (145) Transforming Protocol Specifications for Wireless Sensor Networks into Efficient Embedded System Implementations**
G. Wagenknecht, D. Dietterle, J.-P. Ebert, R. Kraemer
3rd European Workshop on Wireless Sensor Networks (EWSN), Zurich,
February 13-15, 2006, Switzerland
- (146) 77 GHz Automotive Radar Receiver Front-end in SiGe:C BiCMOS Technology**
L. Wang, J. Borngläber, W. Winkler
ESSCIRC 2006, Montreux,
September 18-22, 2006, Switzerland
- (147) A 0.7-1.4 GHz Variable Band Low Noise Amplifier for Multi-band Applications**
L. Wang, W. Winkler, G. Wang, J. Borngläber
8th International Conference on Solid-State and Integrated-Circuit Technology, Shanghai,
October 23-26, 2006, China
- (148) An Improved Highly-Linear Low-Power Down-Conversion Micromixer for 77 GHz Automotive Radar in SiGe Technology**
L. Wang, R. Kraemer, J. Borngläber
IEEE MTT-S International Microwave Symposium, San Francisco,
June 11-16, 2006, USA
- (149) BAAD: Bidirectional Arbitrated Adaptive DFE**
G. Wang, J.-P. Ebert, R. Kraemer
- 2006 IEEE Sarnoff Symposium, Princeton,
March 27-28, 2006, USA
- (150) Advanced Dielectric Thin Film Deposition Techniques in Microelectronics: From Research to Production**
Ch. Wenger
5th International Summerschool at IHP,
Frankfurt (Oder),
August 28 - September 02, 2006, Germany
- (151) High Quality Layered Pr₂Ti₂O₇/SiO₂ MIM Capacitor for Mixed-Signal Applications**
Ch. Wenger, R. Sorge, T. Schroeder, A.U. Mane, D. Knoll, J. Dabrowski, H.-J. Müssig
The 6th Topical Meeting on Silicon Monolithic Integrated Circuits in RF Systems (SiRFIC) 2006, San Diego, January 18-20, 2006, USA
- (152) High-k Metal-Insulator-Metal Capacitors for Radio Frequency Mixed-Signal Application**
Ch. Wenger, A.U. Mane, R. Sorge, G. Weidner, T. Schroeder, J. Dabrowski, G. Lippert, P. Zaumseil, H.-J. Müssig
DPG Frühjahrstagung Dresden,
March 27-31, 2006, Germany
- (153) Non-Linearity of High-k MIM Capacitors**
Ch. Wenger, T. Schroeder, J. Dabrowski, R. Sorge, H.-J. Müssig, S. Pasko, Ch. Lohe
14th Workshop on Dielectrics in Microelectronics (WODIM), Catania,
June 26-28, 2006, Italy
- (154) New Support System at IHP and Customer Satisfaction Questionnaire**
W. Wichmann
5th Workshop High-Performance SiGe BiCMOS for Wireless and Broadband Communication, Frankfurt (Oder),
September 25-26, 2006, Germany
- (155) An Indoor Localization System Based on DTDOA for Different Wireless LAN**
F. Winkler, E. Fischer, E. Grass, P. Langendörfer

- 3rd Workshop on Positioning, Navigation and Communication – WPNC 2006, Hannover, March 16, 2006, Germany
- (156) Front-End MMIC for Low-Cost 24 GHz Radar Systems**
W. Winkler, J. Borngräber
International Radar Symposium (IRS 2006), Krakow, May 22-26, 2006, Poland
- (157) Radar Circuits and Components**
W. Winkler
36th European Microwave Conference 2006, Manchester, September 10-15, 2006, UK
- (158) Interconnect Technologies, Metallization, Selected Backend of Line (BEOL) Topics**
D. Wolansky
5th International Summerschool at IHP, Frankfurt (Oder), August 28 - September 02, 2006, Germany
- (159) Self-Organized Pattern Formation of Biomolecules at Silicon Surfaces**
A. Wolff, W. Fritzsche, M. Kittler, X. Yu, M. Reiche, T. Wilhelm, M. Seibt, O. Voß
DNA-Based Nanoscale Integration Symposium, Jena, May 23-25, 2006, Germany
- (160) Self-Organized Pattern Formation of Biomolecules at Silicon Surfaces**
A. Wolff, W. Fritzsche, M. Kittler, X. Yu, M. Reiche, T. Wilhelm, M. Seibt, O. Voß
Summer School: Complex Materials: Cooperative Projects of the Natural, Engineering and Biosciences; International University Bremen, June 24 - July 01, 2006, Germany
- (161) Self-organized Pattern Formation of Biomolecules at Silicon Surfaces**
A. Wolff, W. Fritzsche, M. Kittler, X. Yu, M. Reiche, T. Wilhelm, M. Seibt, O. Voß
Symposium, DANN-based Nanoscale Integration', Jena, May 18-22, 2006, Germany
- (162) P Segregation Behavior in SiGe:C Epitaxy**
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