Erschienene Publikationen
Published Papers

(1) Effect of Laser Annealing on Crystallinity of the Si Layers in Si / SiO_2 Multiple Quantum Wells
T. Arguirov, T. Mchedlidze, V.D. Akhmetov, S. Kouteva-Arguirova, M. Kittler, R. Rölver, B. Berghoff, M. Först, D.L. Bätzner, B. Spangenberg
Applied Surface Science **254**(4), 1083 (2007)

We report on continuous-wave laser induced crystallisation processes occurring in Si / SiO_2 multiple quantum wells (MQW), prepared by remote plasma enhanced chemical vapour deposition of amorphous Si and SiO_2 layers on quartz substrates. The size and the volume fraction of the Si nanocrystals in the layers were estimated employing micro-Raman spectroscopy. It was found that several processes occur in the Si / SiO_2 MQW system upon laser treatment, i.e. amorphous to nanocrystalline conversion, Si oxidation and dissolution of the nanocrystals. The speed of these processes depends on laser power density and the wavelength, as well as on the thickness of Si-rich layers. At optimal laser annealing conditions, it was possible to achieve 100% crystallinity for 3, 5 and 10 nm thickness of deposited amorphous Si layers. Crystallization induced variation of the light absorption in the layers can explain the complicated process of Si nanocrystals formation during the laser treatment.

(2) Photoluminescence Study on Defects in Multicrystalline Silicon
T. Arguirov, G. Jia, W. Seifert, M. Kittler
Semiconductors **41**(4), 436 (2007)

We report on spatially resolved luminescence measurements on ribbon-grown silicon samples. It is found that the band-edge luminescence shows anomalous temperature behavior, namely an increase in the radiation intensity with temperature. Phosphorous diffusion gettering is found to enhance this effect. The anomalous temperature behavior is attributed to nonradiative recombination governed by shallow traps. A shift in the phonon replica of the band edge luminescence peak has been observed and associated with tensile stress.

(3) Modeling of Diffraction from Fiber Texture Gradients in Thin Polycrystalline Films
M. Birkholz
Journal of Applied Crystallography **40**, 735 (2007)

Crystallographic textures in thin polycrystalline films typically exhibit a rotational symmetry, i.e. they occur as a fibre texture with the texture pole being orientated in the direction of the substrate normal. As a further characteristic of thin-film textures, it was often observed that the degree of preferred orientation increases with increasing thickness. It is shown in this work how a fibre texture gradient may be modelled in kinematical X-ray diffraction and which effects it has on the intensity mapping of the I_{HKL} reflection, when the HKL pole is the fibre axis. A general expression for I_{HKL} is derived for a depth dependent fibre texture that is based on the finite Laplace transform of the texture distribution. The concept is outlined for the $\cos^n$ Psi function to model the tilt-angle dependence of intensity, with the parameter n denoting the degree of texture. It is found that the measured intensity distribution sensitively depends on the ratio of texture gradient over X-ray attenuation coefficient. For particular cases, it is found that the maximum intensity may occur for non-zero tilt angles and thus arise at a different tilt angle from the pole of the fibre texture.

(4) Small-Angle Reciprocal Space Mapping of Surface Relief Gratings
M. Birkholz, P. Zaumseil, J. Bauer, D. Bolze, G. Weidner
Materials Science and Engineering C **27**, 1154 (2007)

The nanopatterning of semiconductor surfaces and the subsequent preparation of bio-semiconductor hybrid devices on such surfaces will enable the application of new principles of biomolecular sensing. Nanopatterning may be achieved due to decreasing minimum feature dimensions by various techniques well

established in CMOS processing. Here, the preparation and investigation of surface relief gratings (SRG) is reported that were obtained by selective n^+-doping of p-type silicon wafers via 130 nm lithography and ion implantation. B-doped Si (001) wafers with 0.01 Ohm cm were used as starting material. Both, line and cross lattices of 360 and 260 nm pitch, respectively, were prepared by covering the p-doped areas and implanting with 3×10^{15} cm^{-2} 45 keV As^+. Wafers were subjected to annealing and cleaning procedures subsequently. The doping lattices with n^+-p periodicity were unexpectedly identified to be associated with a topographic modulation of the wafer surface, i.e. SRG peaks were observed by X-ray rocking curve scans at small scattering angles. High SRG peak intensities of up to 80% of the specular reflection were observed in the maximum case, while AFM investigations revealed the SRGs to exhibit an rms roughness of only a few 0.1 nm. It can be concluded that conventional CMOS technology allows for the preparation of SRGs with height modulations in the sub-nm range and that lateral periodicities may effectively be probed by small-angle reciprocal space mapping.

(5) A Transceiver Front-End for Ultra-Wide-Band Applications
P.K. Datta, X. Fan, G. Fischer
IEEE Transactions on Circuits and Systems II **54**(4), 362 (2007)

An integrated pulse based ultra-wide-band (UWB) transceiver front-end is presented in this paper. The pulse generator produces Gaussian modulated pulses satisfying Federal Communication Commission spectral mask with possibility for binary-phase shift keying modulation. The generated pulses have a bandwidth of 2 GHz from 3.1 to 5.1 GHz. The receiver front-end consists of an UWB low-noise amplifier (LNA). The transmit and receive paths are chosen by a transmit/receive (T/R) switch. The pulse generator, T/R switch and the LNA are integrated on a single chip and fabricated using 0.25 µm SiGe:C BiCMOS technology. The integrated circuit components are designed fully differential. The off-chip antenna and bandpass filter are single ended and connected to the T/R switch through a hybrid coupler.

(6) Influence of Halo Implant on Leakage Current and Sheet Resistance of Ultra-Shallow P-N Junctions
V.N. Faifer, D.K. Schroder, M.I. Curent, T. Claryssee, P.J. Timans, T. Zangerle, W. Vandervorst, T.M.H. Wong, A. Moussa, S. McCoy, J. Gelpey, W. Lerch, S. Paul, D. Bolze
Journal of Vacuum Science and Technology B **25**(5), 1588 (2007)

Sheet resistance and leakage current density of spike rapid thermal processed, millisecond flash annealed, and chemical vapor deposition (CVD) grown ultra shallow junctions (USJs) are compared with the contactless junction photovoltage technique for measurement of sheet resistance and leakage current (RsL) and four-point probe (4PP) techniques. A significant leakage current increase for USJs formed in halo-implanted profiles is explained by high electron and hole recombination generation in the near-surface end-of-range damaged layer enhanced by trap-assisted tunneling. The reduced thermal budget of millisecond annealing allows junction formation with reduced dopant diffusion and lower sheet resistance. However, when strong halo doping is employed, there is a significant increase in junction leakage current relative to that for junctions formed by spike annealing. This rise in leakage current can be reduced by annealing the halo implants before implanting the USJ or by lowering the halo implant dose. USJs grown with CVD demonstrate low leakage current due to localization of recombination centers at the edge of the depletion layer where recombination (generation) is low. This study demonstrates the importance of characterizing USJs formed in halo profile using the contactless RsL technique and highlights the limitations of contact probes, such as four-point probes, for characterization of advanced ultralarge scale integrated junctions.

(7) Load Induced Stresses and Plastic Deformation in 450 mm Silicon Wafers
A. Fischer, G. Kissinger
Applied Physics Letters **91**(12), 111911 (2007)

The authors present the physical basis for estimation of gravitational constraints in 450 mm silicon wafers subjected to high temperature processes. They have identified and quantified the relevant phenomena to predict the mechanical behavior of very large silicon wafers horizontally stacked and ring- or point-like supported in a vertical-type furnace. It is shown that load induced stress at the supports increases directly proportional with increasing wafer diameter, although the weight of the wafer increases with the square of diameter. The results allow the optimization for a defect-free high temperature treatment of 450 mm wafer used for leading edge device fabrication in future.

(8) High-Performance BiCMOS Technologies without Epitaxially-Buried Subcollectors and Deep Trenches

B. Heinemann, R. Barth, D. Knoll, H. Rücker, B. Tillack, W. Winkler
Semiconductor Science and Technology **22**(1), S153 (2007)

A 0.25 µm SiGe:C BiCMOS technology family (SG25H) with high-speed npn and pnp transistors for different performance requirements is presented. A CMOS-friendly integration scheme is realized by using collector wells, implanted after shallow trench formation, and avoiding deep trenches and extra collector sinkers. Three process variants are offered. The key bipolar transistor of the SG25H1 process is a 200 GHz npn device. The SG25H3 process offers three different types of npn HBTs. The performance ranges from $f_T/f_{max}/BV_{CEo}$ values of 110 GHz/180 GHz/2.3 V for the high-speed (HS) device to 50 GHz/140 GHz/4.5 V for the medium voltage (MV) device and 30 GHz/80 GHz/6.5 V for the high-voltage (HV) transistor. The SG25H2 process provides in addition to npn transistors similar to those of SG25H1 and H3 a very high-speed SiGe:C pnp HBT with $f_T/f_{max}/BV_{CEo}$ values of 90 GHz/120 GHz/2.8 V.

(9) Integrated Frequency Synthesizer in SiGe BiCMOS Technology for 60 GHz and 24 GHz Wireless Applications

F. Herzel, S. Glisic, W. Winkler
Electronics Letters **43**(3), 154 (2007)

A fully integrated silicon-based frequency synthesiser for 60 and 24 GHz applications is presented. The relative frequency tuning range is 5 %, and the total power dissipation is 135 mW at 2.3 V supply voltage. Phase noise at 48 GHz is lower than -98 dBc/Hz at 1 MHz offset over the whole tuning range, which is 8 dB lower than in all previous silicon-based solutions.

(10) Influence of Dislocation Loops on the Near-Infrared Light Emission from Silicon Diodes

T. Hoang, J. Hollemann, P. LeMimnh, J. Schmitz, T. Mchedlidze, T. Arguirov, M. Kittler
IEEE Transactions on Electron Devices **54**(8), 1860 (2007)

The infrared light emission of forward-biased silicon diodes is studied. Through ion implantation and anneal, dislocation loops were created near the diode junction. These loops suppress the light emission at the band-to-band peak around 1.1 µm. The so-called D1 line at 1.5 µm is strongly enhanced by these dislocation loops. We report a full study of photoluminescence and electroluminescence of these diodes. The results lead to new insights for the manufacturing approach of practical infrared light sources in integrated circuits.

(11) Cathodoluminescence Investigation of Silicon Nanowires Fabricated by Thermal Evaporation of SiO

G. Jia, T. Arguirov, M. Kittler, Z. Su, D. Yang, J. Sha
Semiconductors **41**(4), 391 (2007)

Silicon nanowire samples fabricated by thermal evaporation of SiO powder were investigated by Cathodoluminescence. Three main bands were found at low temperatures, namely, peak 1 at about 620-650 nm (2.0-1.91 eV), peak 2 at 920 nm (1.35 eV), and peak 3

at 1280 nm (0.97 eV). An additional broad band (peak 4) in the infrared region with its maximum at ~1570 nm (0.79 eV) appears at room temperature. The origins of the emission bands are discussed.

(12) 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
Journal of the Electrochemical Society **154**(6), H454 (2007)

We have investigated the impact of rapid thermal annealing (RTA) induced vacancy supersaturation on oxide precipitation based as much as possible on 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 nVO_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 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 ≥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 ≥1150°C.

(13) Regular Dislocation Networks in Silicon as a Tool for Novel Nanostructure Devices
M. Kittler, X. Yu, T. Mchedlidze, T. Arguirov, O.F. Vyvenko, W. Seifert, M. Reiche, T. Wilhelm, M. Seibt, O. Voß, W. Fritzsche, A. Wolff
Small **3**(6), 964 (2007)

Well-controlled fabrication of dislocation networks in Si using direct wafer bonding opens broad possibilities for nanotechnology applications. Concepts of dislocation-network-based light emitters, manipulators of biomolecules, gettering and insulating layers, and three-dimensional buried conductive channels are presented and discussed. A prototype of a Si-based light emitter working at a wavelength of about 1.5 µm with an efficiency potential estimated at 1% is demonstrated.

(14) 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
Materials Science and Engineering C **27**(5-8), 1252 (2007)

The paper presents a critical analysis of Si light emitters made by ion implantation and describes novel concepts for IR light emitters based on silicon nanostructures that do not need Er doping. It is shown that dislocation networks which can be generated in a well controlled way by wafer direct bonding exhibit promising light emitting properties. The luminescence of the dislocation networks can be tailored by the choice of the misorientation of the bonded wafers. It is demonstrated that efficient D1 emission (1.55 µm) at 300 K or D3 emission (1.3 µm) can be obtained for specific misorientations. An enhancement of the luminescence is observed when applying a bias voltage across the network, caused by a changed occupation of the states at the network. Oxygen in the dislocation network is supposed to increase the intensity of the D1 luminescence. Si nanowires are discussed as another potential candidate for IR emitters. Among other lines, efficient luminescence around 1.55 µm is found at 300 K in nanowires. This emission line is attributed to extended defects within the nanowires.

(15) Globally Asynchronous, Locally Synchronous Circuits: Overview & Outlook
M. Krstic, E. Grass, F. Gürkaynak, P. Vivet
IEEE Design & Test **24**(5), 430 (2007)

This article provides a pragmatic survey on the state of the art in GALS architectural techniques, design flows, and applications. The authors also prescribe several industrial inventions and changes in metho-

dology, tools, and design flow that would improve GALS-based integration of IP blocks.

(16) Crosslayer Firewall Interaction as a Means to Provide Effective and Efficient Protection at Mobile Devices
P. Langendörfer, K. Piotrowski, S. Peter, M. Lehmann
Computer Communications **30**(7), 1487 (2007)

In this paper, we discuss packet filtering firewalls and an application level gateway approach used to secure handheld devices. We propose a firewall management plane as a means for crosslayer interaction. In our approach the application level gateway updates the firewall rules based on its knowledge about whether or not a certain source is sending malicious packets. Hereby, we pursue a policy of removing malicious packets as close as possible to the network interface. We show that in case of secure web service such a crosslayer interaction can significantly decrease the CPU load in case of attacks, i.e., if many malicious packets arrive at the handheld device. Our measurement results show that our crosslayer approach can reduce the CPU load caused by the application layer gateway by about 10–30%. Finally, we propose an integrated firewall processing approach that promises further improvements. It integrates the application controlled firewall before the MAC and provides crosslayer mechanisms to reduce the performance issues of traditional firewall approaches.

(17) Morphology and Composition of Selected High-k Materials and Their Relevance to Dielectric Properties of Thin-Films
G. Lippert, J. Dabrowski, I. Costina, G. Lupina, Ch. Wenger, P. Zaumseil, H.-J. Müssig
ECS Transactions **6**(3), 773 (2007)

We discuss some of the issues associated with the relation between the leakage current and the dielectric constant on the one hand, and the crystallographic structure and the chemical composition of the film on the other. We compare the technology requirements for various applications, the open questions, and the known answers and physical mechanisms. We focus mostly on dielectrics containing Pr oxides. Starting with the binary Pr_2O_3, we investigate electronic properties and formation energies of point defects as revealed by ab initio calculations and we attempt to associate this data with the experimental information on the influence of processing on the dielectric quality of the film. We then consider Pr silicates on Si for MOSFETs and $Pr_xAl_{2-x}O_3$ on TiN for MIM front-end applications. In the latter case, annealing above about 800°C needed to noticeably increase the effective dielectric constant causes an increased leakage. In this context, we discuss the diffusion mechanism for Ti and the influence of Ti on the leakage current.

(18) Atomic-Vapor-Deposited HfO_2 and $Sr_4Ta_2O_9$ Layers for Metal-Insulator-Metal Applications
M. Lukosius, Ch. Wenger, T. Schroeder, J. Dabrowski, R. Sorge, I. Costina, H.-J. Müssig, S. Pasko, Ch. Lohe
Microelectronic Engineering **84**, 2165 (2007)

$Sr_4Ta_2O_9$ and HfO_2 films were prepared on 200 mm TiN/Si(100) substrates by Atomic Vapour Deposition (AVD). Depositions were carried out within a thermal budget of CMOS back end of line. Electrical properties have been investigated in metal-insulator-metal capacitors after sputter deposition of Au top electrodes. Both $Sr_4Ta_2O_9$ and HfO_2 dielectrics show excellent electrical performances. Oxides possess high capacitance densities of 3.5 $fF/\mu m^2$ (HfO_2) and 4.5 $fF/\mu m^2$ ($Sr_4Ta_2O_9$) in combination with high voltage linearity (Alpha<100ppm/V^2). $Sr_4Ta_2O_9$ MIM capacitors provide lower leakage currents at 2 V, while HfO_2 MIMs offer higher operating voltage values for 10 years lifetime than $Sr_4Ta_2O_9$ based capacitors. The dielectric breakdown fields of HfO_2 (5.8 MV/cm) and $Sr_4Ta_2O_9$ (3.2 MV/cm) were obtained from I(V) characteristics.

(19) Influence of Electric Field on Spectral Positions of Dislocation-related Luminescence Peaks in Silicon: Stark Effect
T. Mchedlidze, T. Arguirov, M. Kittler, T. Hoang, J. Hollemann, J. Schmitz
Applied Physics Letters **91**, 201113 (2007)

Spectral positions of dislocation-related luminescence (DRL) peaks from dislocation loops located close to a p-n junction in silicon were shifted by carrier injection level. We suppose that the excitonic transition energies of DRL were reduced by an effective electric field at dislocation sites due to quadratic Stark effect (QSE). The field results from built-in junction field reduced by carrier injection. A constant of the shift, obtained from fitting of the data with QSE equation, was 0.0186 meV/(kV/cm)^2. The effect can explain the diversity of DRL spectra in silicon and may allow tuning and modulation of DRL for future photonic applications.

(20) Signatures of Distinct Structures Related to Rod-like Defects in Silicon Detected by Various Measurement Methods
T. Mchedlidze, T. Arguirov, G. Jia, M. Kittler
Physica Status Solidi A **204**(7), 2229 (2007)

Silicon samples containing rod-like defects (RLD) and pre-characterized by the electric-dipole spin resonance (EDSR) method were investigated by photoluminescence (PL) and deep level transient spectroscopy (DLTS) methods. Employing previously reported strict correlation between the EDSR signatures of various RLD structures and their structural models developed from microscopy (TEM) investigations it became possible to associate PL and DLTS features with these defects. The results suggest that at low measurement temperatures, i.e. at 10 K, sharp PL emission peak detected at 1405 nm is related to line-interstitial defects (LID), that detected at 1372 nm to plane defects (PD) and two peaks detected at 1426 nm and 1515 nm to dislocation dipoles (DD). Two energy bands related to LIDs are positioned at 0.2 eV and 0.25 eV from the conduction band of Si. Band-like states associated with PD are positioned at 0.5 eV and those related to DDs at 0.32-0.36 eV below the conduction band. Properties of DLTS signatures and temperature dependencies for the PL peaks are reported.

(21) Structural and Optical Properties of Si/SiO_2 Multi-Quantum Wells
T. Mchedlidze, T. Arguirov, M. Kittler, R. Roelver, B. Berghoff, M. Foerst and B. Spangenberg
Physica E **38**(1-2), 152 (2007)

Structural and optical properties of Si/SiO_2 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 SiO_2 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.

(22) Phase Noise and Jitter Modeling for Fractional-N PLLs
S.A. Osmany, F. Herzel, K. Schmalz, W. Winkler
Advances in Radio Science **5**, 313 (2007)

We present an analytical phase noise model for fractional-N phase-locked loops (PLL) with emphasis on integrated RF synthesizers in the GHz range. The noise of the crystal reference, the voltage-controlled oscillator (VCO), the loop filter, the charge pump, and the sigma-delta modulator (SDM) is filtered by the

PLL operation. We express the rms phase error (jitter) in terms of phase noise of the reference, the VCO phase noise and the third-order loop filter parameters. In addition, we consider OFDM systems, where the PLL phase noise is reduced by digital signal processing after down-conversion of the RF signal to baseband. The rms phase error is discussed as a function of the loop parameters. Our model drastically simplifies the noise optimization of the PLL loop dynamics.

(23) Scanning Probe Studies of the Electrical Activity at Interfaces Formed by Silicon Wafer Direct Bonding
M. Ratzke, O.F. Vyvenko, X. Yu, J. Reif, M. Kittler, M. Reiche
Physica Status Solidi C **4**(8), 2893 (2007)

In order to investigate the electrical properties at the surface of dislocation rich silicon, we conducted Electrostatic Force Microscopy on cross-sections of samples prepared by Wafer Direct Bonding. The applied methods, namely Scanning Kelvin Probe Microscopy and non-contact Scanning Capacitance Microscopy, yield a distinct contrast at the position of the dislocation area, i.e. the bonding interface, indicating strong electrical activity. For an explanation of the explicit electrostatic potential extracted from the experiment a simple model taking into account only an intrinsic charge distribution at the dislocation area appears to be insufficient. Instead, a more complex approach has to be used considering carrier generation and recombination by additional, dynamic mechanisms.

(24) Use of Ultrasound for Metal Cluster Engineering in Ion Implanted Silicon
A. Romanyuk, P. Oelhafen, R. Kurps, V. Melnik
Applied Physics Letters **90**, 013118 (2007)

This letter presents an approach to metal cluster engineering in silicon oxide that uses ultrasound vibration applied in situ during implantation. Analysis by transmission electron microscopy has demonstrated that in situ applied acoustic vibrations result in a lowering of the clustering threshold and an increase in cluster size after subsequent annealing. The results are interpreted in terms of the interaction between ultrasonic vibrations and point defects leading to the formation of vacancy-rich regions, as determined by deuterium decoration method. The excess of vacancies in the precipitation region facilitates nucleation and stimulates cluster growth due to enhanced diffusion of metal species.

(25) Heteroepitaxial Praseodymium Sesquioxide Films on Si(111): A New Model Catalyst System for Praseodymium Oxide Based Catalysts
A. Schaefer, Yu. Borchert, M. Bäumer, T. Schroeder, G. Lupina, Ch. Wenger, J. Dabrowski
Surface Science **601**, 1473 (2007)

The structure, growth and stoichiometry of heteroepitaxial Pr_2O_3 films on Si(111) were characterized by a combined RHEED, XRD, XPS and UPS study in view of future applications as a surface science model catalyst system. RHEED and XRD confirm the growth of a (0001) oriented hexagonal Pr_2O_3 phase on Si(111), matching the surface symmetry by aligning the <1010> oxide in-plane direction along the <011> Si azimuth. After an initial nucleation stage RHEED growth oscillation studies point to a Frank-van der Merwe growth mode up to a thickness of approximately 12 nm. XPS and UPS prove that the initial growth of the Pr_2O_3 layer on Si up to ~1 nm thickness is characterized by an interface reaction with Si. Nevertheless stoichiometric Pr_2O_3 films of high crystalline quality form on top of these Pr-silicate containing interlayers.

(26) An Integrated 5 GHz Wideband Quadrature Modem for OFDM Gbit/s Transmission in SiGe:C BiCMOS
K. Schmalz, E. Grass, F. Herzel, M. Piz
International Journal of Microwave Science and Technology **Vol. 2007**, Article ID 47927 (2007)

This paper presents a wideband I/Q modulator for the 5 GHz band, which is integrated with a 5 GHz phase-locked loop for I/Q generation. The quadrature signals are derived from a 10 GHz CMOS VCO followed

by a bipolar frequency divider. The image rejection of the modulator is -35 dBc for input frequencies up to 200 MHz. Phase noise at 1 MHz is below -112 dBc/Hz at the modulator output. The chip was produced in a 0.25 µm SiGe BiCMOS technology. The modulator and the corresponding demodulator will be part of an integrated 60 GHz OFDM wideband heterodyne transceiver with 1 Gbit/s data rate.

(27) Self Assembled Ge Nanocrystals on High-k Cubic Pr_2O_3 (111)/Si(111) Support Systems
T. Schroeder, I. Costina, G. Weidner, A. Giussani, O. Seifarth, Ch. Wenger, P. Zaumseil, C. Mucota, T.H. Metzger, D. Geiger, H. Lichte
Journal of Applied Physics **102**, 034107 (2007)

The stoichiometry, structure, and defects of self-assembled heteroepitaxial Ge nanodots on twin-free type B oriented cubic Pr_2O_3(111) layers on Si(111) substrates are studied to shed light on the fundamental physics of nanocrystal based nonvolatile memory effects. X-ray photoelectron spectroscopy studies prove the high stoichiometric purity of the Ge nanodots on the cubic Pr_2O_3(111)/Si(111) support system. Synchrotron based x-ray diffraction, including anomalous scattering techniques, was applied to determine the epitaxial relationship, showing that the heteroepitaxial Ge(111) nanodots crystallize in the cubic diamond structure with an exclusive type A stacking configuration with respect to Si(111). Grazing incidence small angle x-ray scattering was used in addition to analyze the average shape, size, and distance parameters of the single crystalline Ge nanocrystal ensemble. Furthermore, transmission electron micrographs report that partial dislocations are the prevailing extended defect structure in the Ge nanodots, mainly induced by surface roughness on the atomic scale of the cubic Pr_2O_3(111) support.

(28) Synchrotron Radiation X-Ray Photoelectron Spectroscopy Study on the Interface Chemistry of High-k $Pr_xAl_{2-x}O_3$ (x= 0 to 2) Dielectrics on TiN for Dynamic Random Access Memory Applications
T. Schroeder, G. Lupina, G. Lippert, Ch. Wenger, O. Seifarth, M. Tallarida, D. Schmeißer
Journal of Applied Physics **102**, 014103 (2007)

Engineered dielectrics combined with compatible metal electrodes are important materials science approaches to scale three-dimensional trench dynamic random access memory (DRAM) cells. Highly insulating dielectrics with high dielectric constants were engineered in this study on TiN metal electrodes by partly substituting Al in the wide band gap insulator Al_2O_3 by Pr cations. High quality $PrAlO_3$ metal-insulator-metal capacitors were processed with a dielectric constant of 19, three times higher than in the case of Al_2O_3 reference cells. As a parasitic low dielectric constant interface layer between $PrAlO_3$ and TiN limits the total performance gain, a systematic nondestructive synchrotron x-ray photoelectron spectroscopy study on the interface chemistry of $Pr_xAl_{2-x}O_3$ (x=0–2) dielectrics on TiN layers was applied to unveil its chemical origin. The interface layer results from the decreasing chemical reactivity of $Pr_xAl_{2-x}O_3$ dielectrics with increasing Pr content x to reduce native Ti oxide compounds present on unprotected TiN films. Accordingly, $PrAlO_3$ based DRAM capacitors require strict control of the surface chemistry of the TiN electrode, a parameter furthermore of importance to engineer the band offsets of $Pr_xAl_{2-x}O_3$/TiN heterojunctions.

(29) High-Density-Plasma (HDP)-CVD Oxide to Thermal Oxide Wafer Bonding for Strained Silicon Layer Transfer Applications
R. Singh, I. Radu, M. Reiche, C. Himcinschi, B. Kuck, B. Tillack, U. Gösele, S.H. Christiansen
Applied Surface Science **253**(7), 3595 (2007)

Direct wafer bonding between high-density-plasma chemical vapour deposited (HDP-CVD) oxide and thermal oxide (TO) has been investigated. HDP-CVD oxides, about 230 nm in thickness, were deposited on

Si(0 0 1) control wafers and the wafers of interest that contain a thin strained silicon (sSi) layer on a so-called virtual substrate that is composed of relaxed SiGe (4 µm thick) on Si(0 0 1) wafers. The surfaces of the as-deposited HDP-CVD oxides on the Si control wafers were smooth with a root-mean-square (RMS) roughness of <1 nm, which is sufficiently smooth for direct wafer bonding. The surfaces of the sSi / SiGe / Si(0 0 1) substrates show an RMS roughness of >2 nm. After HDP-CVD oxide deposition on the sSi / SiGe / Si substrates, the RMS roughness of the oxide surfaces was also found to be the same, i.e., >2 nm. To use these wafers for direct bonding the RMS roughness had to be reduced below 1 nm, which was carried out using a chemo-mechanical polishing (CMP) step. After bonding the HDP-CVD oxides to thermally oxidized handle wafers, the bonded interfaces were mostly bubble- and void-free for the silicon control and the sSi / SiGe / Si(0 0 1) wafers. The bonded wafer pairs were then annealed at higher temperatures up to 800 °C and the bonded interfaces were still found to be almost bubble- and void-free. Thus, HDP-CVD oxide is quite suitable for direct wafer bonding and layer transfer of ultrathin sSi layers on oxidized Si wafers for the fabrication of novel sSOI substrates.

(30) Efficient Inner Receiver Design for OFDM-Based WLAN Systems: Algorithm and Architecture

A. Troya, K. Maharatna, M. Krstic, E. Grass, U. Jagdhold, R. Kraemer
IEEE Transactions on Wireless Communications **6**(4), 1374 (2007)

In this article we propose a complete solution for the so-called Inner Receiver of an OFDM-WLAN system based on the IEEE 802.11a standard. We concentrate our investigations on three key components forming the Inner Receiver namely, the Synchronizer, the Channel Estimator and the Digital Timing Loop. The main goal is the joint optimization of the signal processing algorithms along with the implementation friendly VLSI architecture required for these three key components in order to reduce power, area and latency, without compromising the performance excessively. We provide both the mathematical details and extensive computer simulations to validate our design.

(31) Gamma Radiation Effects on Different Varieties of SiGe:C HBT Technologies

M. Ullan, S. Diez, F. Campabadal, G. Pellegrini, D. Knoll, B. Heinemann
IEEE Transactions on Nuclear Science **54**(4), 989 (2007)

We have studied the ionization damage produced by gamma irradiation on transistors from three different varieties of SiGe:C HBT technologies from Innovation for High Performance Microelectronics (IHP), Germany. The results show strong gain degradations at the highest doses, with an indication of damage saturation. We did not observe strong differences in radiation tolerance among the three different technologies. These studies are in the framework of the radiation assurance tests of SiGe BiCMOS technologies for their possible application in the front-end readout electronics of the detector modules of the future ATLAS upgrade for the Super-LHC, but space-oriented applications are also considered. A comparison is presented with previous gamma irradiations of different SiGe technologies in the literature.

(32) Radiation Hardness Evaluation of SiGe HBT Technologies for the Front-End Electronics of the ATLAS Upgrade

M. Ullan, S. Diez, F. Campabadal, M. Lozano, G. Pellegrini, D. Knoll, B. Heinemann
Nuclear Instruments and Methods in Physics Research A **579**, 828 (2007)

We studied the radiation hardness of different SiGe BiCMOS technologies in the search for a proper microelectronic technology to be used in the design of the Front-End chip for the readout of detectors of the Inner Detector of the ATLAS Upgrade for the future Super-LHC. Gamma and neutron irradiations were performed in order to account for ionization and displacement damage. The results show that all technologies are still functional after irradiation to the levels expected at the real experiment. Small differences were observed among technologies, therefore more statistics would be needed in order to make a selection of technology for the final design.

(33) An Area Efficient Realization of AES for Wireless Devices
F. Vater, P. Langendörfer
it - Information Technology **3**, 188 (2007)

In this paper we describe our own AES implementation, which supports encryption as well as decryption. Our major design goal was to reduce the area while still being capable to support high speed wireless networks such as IEEE 802.11a. Our AES solution provides a throughput of 54 MBit/s at 33 MHz and requires an area of 0.33 mm^2 in a 0.25 µm technology. This version may be run at up to 66 MHz which gives a throughput of 108 MBit/s. During the design we took into account global as well as local optimisations, i.e. optimisations which could be done inside an individual operation without affecting the rest of the design.

(34) Combined CL/EBIC/DLTS Investigation of a Regular Dislocation Network Formed by Silicon Wafer Direct Bonding
X. Yu, O. Vyvenko, M. Kittler, W. Seifert, T. Mchedlidze, T. Arguirov, M. Reiche
Semiconductors **41**(4), 458 (2007)

Electrical levels of the dislocation network in Si and recombination processes via these levels were studied by means of the combination of grain-boundary deep level transient spectroscopy, grain-boundary electron beam induced current (GB-EBIC) and cathodoluminescence (CL). It was found two deep level traps and one shallow trap existed at the interface of the bonded interface; these supply the recombination centers for carriers. The total recombination probability based on GB-EBIC data increased with the excitation level monotonically; however, the radiative recombination based on D1-D2 CL data exhibited a maximum at a certain excitation level. By applying an external bias across the bonded interface, the CL signal of D-lines was enhanced dramatically. These results are consistent with our models about two channels of recombination via the trap levels.

(35) Enhancement of IR Emission from a Dislocation Network in Si due to an External Bias Voltage
X. Yu, O.F. Vyvenko, M. Reiche, M. Kittler
Materials Science and Engineering C **27**(5-8), 1026 (2007)

Si-based light emitters with efficient emission at 1.5 or 1.3 µm are required for on-chip optical interconnection for the ultra large scale integrated circuits in the future. In this paper, we have shown that dislocation networks in Si formed by direct wafer bonding emit a quartet of luminescence D-lines. The D-line spectrum can be tailored by the structure of the dislocation network. The D1 or D3, with a wavelength of 1.5 or 1.3 µm respectively, can be made dominating in the luminescence spectrum. An external bias voltage applied to the bonded interface can significantly enhance the luminescence intensity of D-lines.

(36) Luminescence of Dislocations Network in Directly Bonded Silicon Wafers
X. Yu, O.F. Vyvenko, W. Seifert, T. Arguirov, T. Wilhelm, M. Reiche
Physica Status Solidi C **4**(8), 3025 (2007)

The luminescence behaviors of dislocation network in directly bonded silicon wafers have been investigated in this paper. The individual dislocations were observed in the sample bonded with extreme small misorientation angles by electron beam induced current (EBIC) technique. The temperature dependence of EBIC contrast of the dislocation lines showed that its contamination degree was smaller than 10^4/cm. The cathodoluminescence (CL) from the dislocation networks showed D1-line existed in all the bonded samples, often along with D2-line. The D3/D4-lines could also be obtained by tuning the misorientations. Meanwhile, the application of an external bias can effectively enhance the luminescence. Furthermore, a metal-insulator (SiO_x, $x < 2$)-semiconductor light-emitting diode (MOS-LED) based on the bonded silicon wafer was demonstrated.

(37) X-Ray Characterization of Periodic Sub-nm Surface Relief Gratings
P. Zaumseil, M. Birkholz, G. Weidner
Physica Status Solidi A **204**(8), 2657 (2007)

Line and cross lattices of 260 and 360 nm pitch were prepared by covering p-doped Si(100) substrates with photoresist, structuring and implanting with 3×10^{15} cm^{-2}, 45 keV As^+ ions. These doping lattices with n^+–p periodicity were investigated by X-ray diffraction (XRD) and reflectivity (XRR). While XRD did not show any signal of the periodic structure, XRR revealed a clear periodic diffraction pattern related to the pitch of the doping lattice. The features of this pattern as a function of the lattice orientation are discussed in detail for the cross lattice. Atomic force microscopy showed that the measured diffraction pattern is caused by a surface relief grating with sub-nm amplitude, which was generated by a final doping dependent etching step during sample preparation.

(38) Radially Non-Uniform Interaction of Nitrogen with Silicon Wafers
V.D. Akhmetov, G. Kissinger, A. Fischer, G. Morgenstern, G. Ritter, M. Kittler
Proc. of 12th International Conference on Defects-Recognition, Imaging and Physics in Semiconductors (DRIP XII), book of abstracts, 30 (2007)

(39) Behavior of N Atoms on Atomic-Order-Nitrided $Si_{0.5}Ge_{0.5}$(100)
N. Akiyama, M. Sakuraba, B. Tillack, J. Murota
Proc. 5th International Symposium on Control of Semiconductor Interfaces, extended abstr. and program, 71 (2007)

(40) Heat-Treatment Effect on Structure of Atomic-Order Nitrided $Si_{0.5}Ge_{0.5}$(100) Using Low Pressure CVD
N. Akiyama, M. Sakuraba, B. Tillack, J. Murota
Proc. 3rd International Workshop on New Group IV Semiconductor Nanoelectronics, abstr. book, 55 (2007)

(41) Structural Change of Atomic-Order Nitride Formed on $Si_{1-x}Ge_x$(100) and Ge(100) by Heat Treatment
N. Akiyama, M. Sakuraba, B. Tillack, J. Murota
Proc. 5th International Conference on Silicon Epitaxy and Heterostructures (ICSI-5), abstr., 216 (2007)

(42) High Resolution Rutherford Backscattering Spectrometry for Investigating Interdiffusion of Thin Films
Ch. Borschel, M. Schnell, M. Uhrmacher, C. Ronning, Ch. Wenger, H. Hofsäss
Verhandlungen der DPG **4**, 238 (2007)

(43) Interdiffusion at the Interface of High-k Pr_2O_3 Layers Grown on Si
Ch. Borschel, M. Schnell, H. Hofsäss, Ch. Wenger, C. Ronning
Verhandlungen der DPG **4**, 217 (2007)

(44) A Fully Integrated Fully Differential Low-Noise Amplifier for Short Range Automotive Radar Using a SiGe:C BiCMOS Technology
S. Chartier, B. Schleicher, F. Korndörfer, S. Glisic, G.G. Fischer, H. Schumacher
Proc. European Microwave Week, 407 (2007)

(45) SiGe Millimeter-Wave Dynamic Frequency Divider with Enhanced Sensitivity Incorporating a Transimpedance Stage
S. Chartier, L. Liu, G.G. Fischer, S. Glisic, H. Höhnemann, A. Trasser, H. Schumacher
Proc. European Microwave Week, 84 (2007)

(46) Charge Traps in High-k Dielectrics: ab Initio Study of Defects in Pr-Based Materials
J. Dabrowski, A. Fleszar, G. Lippert, G. Lupina, A.U. Mane, Ch. Wenger
Rare Earth Oxide Thin Films / ed. by M. Fanciulli, G. Scarel, Berlin, Springer Verl. (Topics in Applied Physics; **106**), 247 (2007)

(47) The Effects of X-Ray and Proton Irradiation on a 200 GHz / 90 GHz Complementary (npn + pnp) SiGe:C HBT Technology
R.M. Diestelhorst, S. Finn, B. Jun, A.K. Sutton, P. Cheng, P.W. Marshall, J.D. Cressler, R.D. Schrimpf, D.M. Fleetwood, H. Gustat, B. Heinemann, G.G. Fischer, D. Knoll, B. Tillack
Proc. IEEE Nuclear and Space Radiation Effects Conference, (2007)

(48) A Hardware Accelerated Implementation of the IEEE 802.15.3 MAC Protocol
D. Dietterle, J.-P. Ebert, R. Kraemer
Proc. 1st IFIP International Conference on Wireless Sensor and Actor Networks (WSAN, 07), Wireless and Actuator Networks / eds. L. Orozco-Barbosa, T. Olivares, R. Casado, A. Bermudez, (Boston: Springer), 215 (2007)

(49) SiGe Bipolar Transistors for Harsh Radiation Environments
S. Diez, M. Ullan, F. Campabadal, M. Lozano, G. Pellegrini, D. Knoll, B. Heinemann
Proc. of the 6th Spanish Conference on Electronic Devices, (2007)

(50) A SiGe:C BiCMOS Technology for 77-81 GHz Automotive Radar Applications
G.G. Fischer, S. Glisic
Proc. European Microwave Week, WSW5, (Automotive High Frequency Electronics - KOKON) (2007)

(51) A Low Phase Noise Integrated SiGe 18…20 GHz Fractional-N Synthesizer
R. Follmann, D. Köther, T. Kohl, M. Engels, V. Heyer, K. Schmalz, F. Herzel, W. Winkler, S. Osmany, U. Jagdhold
Proc. European Microwave Week, 263 (2007)

(52) Doping Concentration Control of SiGe Layers by Spectroscopic Ellipsometry
O. Fursenko, J. Bauer, P. Zaumseil, Y. Yamamoto, B. Tillack
Proc. 5th International Conference on Silicon Epitaxy and Heterostructures (ICSI-5), abstr., 247 (2007)

(53) Characterization of Silicide Stacks by Combination of Spectroscopic Ellipsometry and Reflectometry
O. Fursenko, D. Bolze, I. Costina, P. Zaumseil, T. Huelsmann, J. Niess, W. Lerch
Proc. ICSE 2007, 153 (2007)

(54) Self-assembled Single Crystalline Ge Nanodots on Twin-free Pr_2O_3
A. Giussani, T. Schroeder, C. Mocuta, T.-H. Metzger, P. Formanek, D. Geiger, H. Lichte
Verhandlungen der DPG **4**, 239 (2007)

(55) 60 GHz Channel Plan Proposal
E. Grass, P. Pagani, A. Bourdoux
Proc. IEEE 802.15 Plenary Meeting, IEEE Doc.-No, 802.15-07-0769-00-03c (2007)

(56) 60 GHz WLAN / WPAN: Potential and Limitations, Applications and Standardization Status
E. Grass, M. Piz, K. Tittelbach-Helmrich, R. Kraemer
Proc. European Microwave Week, (WSW8), Workshop Notes, (2007)

(57) 60 GHz SiGe-BiCMOS Radio for OFDM Transmission
E. Grass, F. Herzel, M. Piz, K. Schmalz, Y. Sun, S. Glisic, M. Krstic, K. Tittelbach-Helmrich, M. Ehrig, W. Winkler, J.C. Scheytt, R. Kraemer
Proc. ISCAS 2007, 1979 (2007)

(58) Ätzstopp-Phänomene beim Plasmaätzen tiefer Trenche für sub-100nm-Technologien
S. Günther, H.H. Richter, S. Marschmeyer, G. Weidner, H. Silz, I. Costina, K. Schulz, S. Berger
Proc. 13. Fachtagung Plasmatechnologie, 84 (2007)

(59) De-embedding and Modeling of pnp SiGe HBT's
D. Hadziabdic, C. Jiang, T.K. Johansen, V. Krozer, G.G. Fischer, B. Heinemann
Proc. European Microwave Week, 195 (2007)

(60) A 30 GS/s 4-Bit Binary Weighted DAC in SiGe BiCMOS Technology
S. Halder, H. Gustat
Proc. BCTM 2007, 46 (2007)

(61) Impact of Emitter Fabrication on the Yield of SiGe HBTs
B. Heinemann
Proc. 5th International Conference on Silicon Epitaxy and Heterostructures (ICSI-5), CRM-CN-CNRS, abstr., 65 (2007)

(62) PNP SiGe:C HBT Optimization in a Low-Cost CBiCMOS Process
D. Knoll, B. Heinemann, Y. Yamamoto, H.-E. Wulf, D. Schmidt
Proc. BCTM 2007, 30 (2007)

(63) Verteilte Kommunikationsarchitekturen für autonome Systeme
R. Kraemer
Proc. MikroSystemTechnik 2007, 211 (2007)

(64) A Middleware Approach to Configure Security in WSN
P. Langendörfer, S. Peter, K. Piotrowski, R. Nunes, A. Casaca
Proc. 1st ERCIM Workshop on eMobility, 83 (2007)

(65) Advanced Activation and Deactivation of Arsenic Implanted Ultra-Shallow Junctions Using Flash and Spike + Flash Annealing
W. Lerch, S. Paul, J. Niess, S. McCoy, J. Gelpey, D. Bolze, F. Christiano, F. Severac, S.A. Martinez, P. Pichler
Proc. IEEE RTP 2007 Conference, (2007)

(66) Properties of $Pr_xAl_{2-x}O_3$ (x = 0, 1, 2) High-k Dielectrics on TiN Studied by Synchrotron Radiation X-Ray Photoelectron Spectroscopy
G. Lupina, T. Schroeder, Ch. Wenger, G. Lippert, J. Dabrowski, H.-J. Müssig
MRS Symp. Proc. **1000E**, L6.3 (2007)

(67) XPS Study of Pr-Aluminate High-K Dielectrics on TiN
G. Lupina, T. Schroeder, Ch. Wenger, G. Lippert, J. Dabrowski, H.-J. Müssig
Verhandlungen der DPG **4**, 259 (2007)

(68) The Privacy Advocate (PrivAd): A Framework for Negotiating Individualized Privacy Contracts
M. Maaser, S. Ortmann, P. Langendörfer
Proc. 3rd International Conference on Web Information Systems and Technologies (WEBIST), 88 (2007)

(69) An All in One Chamber Approach for a Shallow Trench Etching Process in 130 nm Node Completely Controlled by Interferometry
St. Marschmeyer, H.H. Richter, H. Silz
Proc. PESN - Plasma Etch and Strip in Microelectronics, abstr. book (2007)

(70) An Overview of SoC Buses
M. Mitic, M. Stojcev, Z. Stamenkovic
Digital Systems and Applications / ed. by V. Oklobdzija, Boca Raton, CRC Press, (2007)

(71) Atomically Controlled Processing for Future Si-Based Devices
J. Murota, M. Sakuraba, B. Tillack
Future Trends in Microelectronics / S. Luryi, J. Xu, A. Zaslavsky (Eds.), Wiley, 246 (2007)

(72) Highly Reliable Thermal Selective Gate Re-Oxidation Process of Advanced Metal Gate Stacks with Tungsten Electrode
J. Niess, C. Kirchner, W. Dietl, H.-J. Meyer, B. Nadig, W. Lerch, I. Costina, D. Bolze
Proc. IEEE RTP 2007 Conference, (2007)

(73) A Self-Configuring Privacy Management Architecture for Pervasive Systems
St. Ortmann, P. Langendörfer, M. Maaser
Proc. of the 5th ACM International Workshop on Mobility Management and Wireless Access (MobiWac), (2007)

(74) Enhancing Privacy by Applying Information Flow Modelling in Pervasive Systems
St. Ortmann, P. Langendörfer, M. Maaser
Proc. International Workshop on Privacy in Pervasive Environments (PiPE ,07), Springer, (LNCS; **4806**), 795 (2007)

(75) An Integrated 19-GHz Low-Phase-Noise Frequency Synthesizer in SiGe BiCMOS Technology
S.A. Osmany, F. Herzel, J.C. Scheytt, K. Schmalz, W. Winkler
Proc. CSIC, 191 (2007)

(76) France Telecom - IHP Joint Physical Layer Proposal for IEEE 802.15 Task Group 3c
P. Pagani, M. Piz, I. Siaud, E. Grass, W. Li, K. Tittelbach-Helmrich, A.-M. Ulmer-Moll, F. Herzel
IEEE 802.15 Interim Meeting, IEEE Doc. No: 802.15-07-0688-01-003c (2007)

(77) France Telecom - IHP Joint Physical Layer Proposal for IEEE 802.15 Task Group 3c
P. Pagani, M. Piz, I. Siaud, E. Grass, W. Li, K. Tittelbach-Helmrich, A.-M. Ulmer-Moll, F. Herzel IEEE 802.15 Interim Meeting, IEEE Doc. No: 802.15-07-0689-00-003c (2007)

(78) An Efficient Polynomial Multiplier GF(2^m) and its Application to ECC Designs
S. Peter, P. Langendörfer
Design Automation & Test in Europe 2007 (Date 07), 1253 (2007)

(79) Flexible Hardware Reduction for Elliptic Curve Cryptography in GF (2^m)
S. Peter, P. Langendörfer, K. Piotrowski
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(80) On Concealed Data Aggregation for Wireless Sensor Networks
S. Peter, P. Langendörfer, K. Piotrowski
Proc. IEEE Consumer Communications and Networking Conference (CCNC 2007), (2007)

(81) A Synchronization Scheme for OFDM-based 60 GHz WPANs
M. Piz, E. Grass
Proc. PIMRC (2007)

(82) Elektrische Charakterisierung von Halbleiterstrukturen mittels Electrostatic Force Microscopy
M. Ratzke, M. Birkholz, J. Bauer, D. Bolze, J. Reif
Verhandlungen der DPG **4**, 604 (2007)

(83) Etch Stop Phenomena in Deep Trench Silicon Plasma Etching for Sub 100 nm Technologies
H.H. Richter, S. Günter, G. Weidner, S. Marschmeyer, H. Silz, I. Costina, K. Schulz, S. Berger
Verhandlungen der DPG **3**, 133 (2007)

(84) SiGe BiCMOS Technology with 3.0 ps Gate Delay
H. Rücker, B. Heinemann, R. Barth, J. Bauer, K. Blum, D. Bolze, J. Drews, A. Fox, O. Fursenko, T. Grabolla, U. Haak, W. Höppner, D. Knoll, K. Köpke, B. Kuck, A. Mai, S. Marschmeyer, T. Morgenstern, H.H. Richter, P. Schley, D. Schmidt, K. Schulz, B. Tillack, G. Weidner, W. Winkler, D. Wolansky, H.-E. Wulf, Y. Yamamoto
IEDM Technical Digest, 651 (2007)

(85) Heteroepitaxial Praseodymium Sesquioxide Films on Si(111): A Future Model Catalyst System for Praseodymium Based Oxide Catalysts
A. Schaefer, T. Schroeder, G. Lupina, Y. Borchert, J. Dabrowski, Ch. Wenger, M. Bäumer
Verhandlungen der DPG **4**, 586 (2007)

(86) Integrated SiGe 60 GHz Wireless Frontends – Status and Future Directions
J.C. Scheytt
Proc. European Microwave Week, (WSW8), Workshop Notes, (2007)

(87) Hardware-Demonstratoren des WIGWAM-Projekts
J.C. Scheytt
BMBF-Statusseminar Mobile Kommunikation 2007, B-Netz-Agentur, (2007)

(88) Optimierung der drahtlosen Übertragung von Multimediadaten im HOMEPLANE Projekt
Ch. Schilling, K. Tittelbach-Helmrich
ITG Fachbericht Elektronische Medien **199**, 37 (2007)

(89) Fault-Tolerant Design for Applications Exposed to Radiation
G. Schoof, R. Kraemer, U. Jagdhold, C. Wolf
Proc. Data Systems in Aerospace (DASIA), (2007)

(90) Radiation-hardened ASIC Design for Real-time Applications
G. Schoof, R. Kraemer, U. Jagdhold, C. Wolf
Proc. DEDIS-Nano-Days-2007, (2007)

(91) Towards High Quality Epi-SiGe / High-k Dielectrics / Si(111) Heterostructures: Interface Engineering by Amorphous Dielectrics and Lattice Matching by Mixed Epitaxial Buffer Oxides
T. Schroeder
Proc. 5th International Conference on Silicon Epitaxy and Heterostructures (ICSI-5), abstr., 192 (2007)

(92) Characterization of Recombination Active Defects in Si Using the Synchrotron-Based Techniques XBIS, µ-XRF and µ-XAS at BESSY Berlin
W. Seifert, O. Vyvenko, I. Zizak, A. Erko, M. Kittler, M. Trushin,
Proc. 22nd European Photovoltaic Solar Energy Conference and Exhibition, 1719 (2007)

(93) MAC Processor for BASUMA Wireless Body Area Network
Z. Stamenkovic, D. Dietterle, G. Panic, W. Bocer, G. Schoof, J.-P. Ebert
Proc. 5th IASTED International Conference on Circuits, Signals and Systems, (2007)

(94) 60 GHz Receiver Building Blocks in SiGe BiCMOS
Y. Sun, F. Herzel, J. Borngräber, R. Kraemer
Proc. of the 7th Topical Meeting on Silicon Monolithic Integrated Circuits in RF Systems (SiRF), 222 (2007)

(95) 60 GHz Transceiver System Design
Y. Sun
Proc. European Microwave Week, (WSW8), Workshop Notes, (2007)

(96) High Throughput Silicon Based Epitaxy in a Vertical LPCVD Furnace
E. Suvar, U. Scheit, T. Grabolla, B. Tillack, G. Ritter
Proc. 5th International Conference on Silicon Epitaxy and Heterostructures (ICSI-5), abstr., 339 (2007)

(97) Effect of Low-Temperature SiH_4 Exposure on Heavily Atomic-Layer Doping of B in Low-Temperature Si Epitaxial Growth on Si(100) by Ultraclean Low-Pressure Chemical Vapor Deposition
H. Tanno, M. Sakuraba, B. Tillack, J. Murota
Proc. 3rd International Workshop on New Group IV Semiconductor Nanoelectronics, abstr. book, (2007)

(98) Heavily Atomic-Layer Doping of B in Low-Temperature Si Epitaxial Growth on Si(100) by Ultraclean Low-Pressure Chemical Vapor Deposition
H. Tanno, M. Sakuraba, B. Tillack, J. Murota
Proc. 5th International Symposium on Control of Semiconductor Interfaces, abstr. book, 151 (2007)

(99) Base Doping and Dopant Profile Control of SiGe NPN and PNP HBTs
B. Tillack, B. Heinemann, D. Knoll, H. Rücker, Y. Yamamoto
Proc. 5th International Symposium on Control of Semiconductor Interfaces, extended abstr. and program, 13 (2007)

(100) Base Doping and Dopant Profile Control of SiGe NPN and PNP HBTs
B. Tillack, B. Heinemann, D. Knoll, H. Rücker, Y. Yamamoto
Proc. 3rd International Workshop on New Group IV Semiconductor Nanoelectronics, abstr. book, 5 (2007)

(101) Combinatorial Logic Circuitry as Means to Protect Low Cost Devices Against Side Channel Attacks
F. Vater, S. Peter, P. Langendörfer
Information Security Theory and Practices, Springer Verl., LNCS; **4462**, 244 (2007)

(102) Test Technology for Sequential Circuits
H.-T. Vierhaus, Z. Stamenkovic
Digital Design and Fabrication / ed. by V. Oklobdzija, Boca Raton, CRC Press, (2007)

(103) A 77-GHz MMIC Power Amplifier Driver for Automotive Radar
L. Wang, J. Borngraeber, W. Winkler, C. Scheytt
Proc. IET International Conference on Radar Systems RADAR 2007, (2007)

(104) A Single-Ended 79 GHz Radar Receiver in SiGe Technology
L. Wang, S. Glisic, J. Borngräber, W. Winkler, J.C. Scheytt
Proc. BCTM, 14.4 (2007)

(105) Indoor Localization based on Wireless LAN
F. Winkler, B. Meffert, P. Langendörfer, E. Fischer
Proceedings of 3rd International ACM Conference on Intelligent Computing and Information Systems, (2007)

(106) SiGe Quantum Well Thermistor Materials
S.G.E. Wissmar, H.H. Radamsson, Y. Yamamoto, B. Tillack, C. Vieider, J.Y. Andersson
Proc. 5th International Conference on Silicon Epitaxy and Heterostructures (ICSI-5), abstr., 353 (2007)

(107) Selective Vapor Phase Etching of SiGe by HCl
Y. Yamamoto, K. Köpke, B. Tillack
Proc. 5th International Conference on Silicon Epitaxy and Heterostructures (ICSI-5), abstr., 75 (2007)

(108) Selective Etching of SiGe by HCl by RPCVD
Y. Yamamoto, K. Köpke, R. Kurps, B. Tillack
Proc. 3rd International Workshop on New Group IV Semiconductor Nanoelectronics, abstr. book, 21 (2007)

(109) Selective Vapor Phase Etching of SiGe by HCl in a RPCVD Reactor
Y. Yamamoto, K. Köpke, R. Kurps, B. Tillack
Proc. 5th International Symposium on Control of Semiconductor Interfaces, abstr. book, 187 (2007)

Eingeladene Vorträge
Invited Presentations

(1) Aktuelle Entwicklungen der Biomolekülsensorik an der Schnittstelle zwischen Bio- und Halbleitertechnologie
M. Birkholz
Institutskolloquium Fraunhofer Institut für Biomedizinische Technik, Potsdam-Golm, October 30, 2007, Germany

(2) Angewandte Mikroelektronik für die Biomolekülsensorik
M. Birkholz
Technologieforum: „In-vitro Diagnostik", Potsdam, November 21, 2007, Germany

(3) BioChips - Perspektiven für Mikroelektronik und Biotechnologie
M. Birkholz
Wissenschaftstag der Marie-Curie Oberschule, Wittenberge, November 09, 2007, Germany

(4) Investigation of Texture Gradients by Anomalous X-Ray Diffraction
M. Birkholz
Regionaler Workshop - Neue Entwicklungen in der Röntgendiffraktometrie und -topographie, Frankfurt (Oder) April 24, 2007, Germany

(5) Minimal-invasiver Glucosesensor
M. Birkholz, K.-E. Ehwald, R. Ehwald
Statusseminar Bioprofile Nutrigenomik, IHK Potsdam, March 20, 2007, Potsdam, Germany

(6) Texture Gradients in Polycrystalline Thin Films
M. Birkholz
5th Size-Strain-Conference - Diffraction Analysis of the Microstructure of Materials, Garmisch-Partenkirchen, October 07-09, 2007, Germany

(7) Entwicklung von energieeffizienten drahtlosen Sensornetzen – das TANDEM-Projekt am IHP
D. Dietterle
Innovationstag touchIT, Frankfurt (Oder), May 05, 2007, Germany

(8) Glucosesensor auf Basis der Affinitätsviskosimetrie
K.-E. Ehwald, R. Ehwald, M. Birkholz
Verein Brandenburgischer Ingenieure und Wirtschaftler, Januar 24, 2007, Frankfurt (Oder), Germany

(9) 60 GHz SiGe-BiCMOS Radio for OFDM Transmission
E. Grass, F. Herzel, M. Piz, K. Schmalz, Y. Sun, S. Glisic, M. Krstic, K. Tittelbach-Helmrich, M. Ehrig, W. Winkler, J.C. Scheytt, R. Kraemer
ISCAS 2007, New Orleans, May 27-30, 2007, USA

(10) 60 GHz WLAN / WPAN: Potential and Limitations, Applications and Standardization Status
E. Grass, M. Piz, K. Tittelbach-Helmrich, R. Kraemer
European Microwave Week, (WSW8), Munich, October 8-10, 2007, Germany

(11) Recent Developments and Prospects of 60 GHz Frequency Regulation and Standardization
E. Grass
EEEfCOM'2007, Session B1, Ulm, June 21, 2007, Germany

(12) Impact of Emitter Fabrication on the Yield of SiGe HBTs
B. Heinemann
5th International Conference on Silicon Epitaxy and Heterostructures (ICSI-5), CRMCN-CNRS, Marseille, May 20-24, 2007, France

(13) Technologiemodule für System-on-Chip Lösungen
B. Heinemann
Technische Universität Ilmenau, February 07, 2007, Germany

(14) 60 GHz Analog Frontend Circuits in SiGe BiCMOS Technology
F. Herzel, S. Glisic, K. Schmalz, Y. Sun, J.C. Scheytt
EEEfCOM 2007, Ulm, June 21, 2007, Germany

(15) Concept and Evaluation of an Efficient Geo-based Forwarding Mechanism for Vehicle Communication within an Urban Network
St. Hiebel
WWRF, Chennai, November 04, 2007, India

(16) Einführung ins digitale Design
U. Jagdhold
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(17) Modeling of Oxide Precipitate Nucleation in Silicon using ab-initio Calculations and Classical Nucleation Theory
G. Kissinger, J. Dabrowski, A. Sattler, T. Müller, W. von Ammon
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(18) Two Paths of Oxide Precipitate Nucleation in Silicon
G. Kissinger, J. Dabrowski, A. Sattler, T. Müller, W. von Ammon
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(19) Dislocations in Silicon as a Tool to be used in Optics, Electronics and Biology
M. Kittler, M. Reiche, T. Arguirov, T. Mchedlidze, W. Seifert, O.F. Vyvenko, T. Wilhelm, X. Yu
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(20) Regular Dislocation Networks in Silicon as a Tool for Novel Nanostructure Devices
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(21) Silicon-based Light Emitters
M. Kittler
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(22) 1/f Noise Measurements
F. Korndörfer
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(23) Aspects of Work in Short Range Communications
R. Kraemer
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(24) Drahtlose Ultrahochgeschwindigkeitskommunikation: Stand der Technik und zukünftige Visionen
R. Kraemer
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(25) Middleware für die effiziente Anbindung telemedizinischer Ressourcen an medizinische Infrastrukturen
R. Kraemer
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(26) Sensornetze: Visionen und Anwendungen
R. Kraemer
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(27) Verteilte Kommunikationsarchitekturen für autonome Systeme
R. Kraemer
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(28) Asynchronous and Synchronous Design Techniques for Communication Systems Application
M. Krstic
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(29) Einsatz starker Krypto-Mechanismen für Smart Dust Anwendungen
P. Langendörfer
Ring Vorlesung BTU Cottbus, June 05, 2007, Germany

(30) Security Solutions for Mobile Devices for Privacy Protection
P. Langendörfer, St. Peter, F. Vater
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(31) Techniken zum Schutz der Privatsphäre im mobilen Internet
P. Langendörfer
Universität Potsdam, 2007, Germany

(32) Experimental and Theoretical Results of Dopant Activation by a Combination of Spike and Flash Annealing
W. Lerch, S. Paul, J. Niess, J. Chan, S. McCoy, J. Gelpey, F. Christiano, F. Severac, P.F. Fazzini, D. Bolze, P. Pichler, S.A. Martinez, A. Mineji, S. Shishiguchi
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(33) From $PrAlO_3$ to $BaHfO_3$
G. Lippert, J. Dabrowski, G. Lupina, H.-J. Müssig
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(34) Morphology and Composition of Selected High-k Materials and Their Relevance to Dielectric Properties of Thin-Films
G. Lippert, J. Dabrowski, I. Costina, G. Lupina, Ch. Wenger, P. Zaumseil, H.-J. Müssig
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(35) Applications of Raman Spectroscopy for High Spatial Resolution Strain Analysis on SOI / SiGe-Film Structures
A. Mai
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(36) Indoor Localization Based on Wireless LAN
B. Meffert, F. Winkler, P. Langendörfer, E. Fischer
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(37) Mikroelektronik aus dem IHP – Transferangebote für Brandenburger Netzwerke und Unternehmen
W. Mehr
Innovationen, Netzwerke und Markterfolg: Konferenz für innovative Unternehmer, Wissenschaftler, und Technologiemittler, Frankfurt (Oder), January 22, 2007, Germany

(38) Photovoltaik in Brandenburg – Herausforderung für die Forschung am IHP
W. Mehr
Photovoltaik-Kompetenzen in Berlin und Brandenburg, Berlin, October 26, 2007, Germany

(39) Das IHP: Forschung für Innovationen
H.-J. Müssig
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(40) High-k Dielectrics for Future Device Technologies
H.-J. Müssig
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(41) Nvision 40 - Anwendungen für die HF-IC Technologieentwicklung
M. Noack, G. Weidner, I. Costina
CrossBeam Workshop, Halle, October 24-25, 2007, Germany

(42) Design of a Programmable Divider Using IHP ECL Library
S.A. Osmany, O. Kersten
ECL Statusseminar, Institut für Informatik, Humboldt-Universität, Berlin, June, 25, 2007, Germany

(43) OFDM Baseband Processor for 60 GHz Communications
M. Piz, M. Krstic, M. Ehrig, R. Kraemer
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(44) 40 Gb/s Elektronik
J.C. Scheytt, H. Gustat
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(45) Designmethodik für Höchstfrequenz ECL-Schaltungen
J.C. Scheytt
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(46) Hardware-Demonstratoren des WIGWAM-Projekts
J.C. Scheytt
BMBF-Statusseminar Mobile Kommunikation 2007, B-Netz-Agentur, Mainz, June 13, 2007, Germany

(47) SiGe Technologien am IHP - Status und zukünftige Entwicklungen
R.F. Scholz, B. Heinemann
EEEfCOM 2007, Ulm, June 21, 2007, Germany

(48) SiGe Technologies Devices and Modeling
R.F. Scholz
The 2nd TARGET Strategic Exchange, Istanbul, August 28-31, 2007, Turkey

(49) Towards High Quality Epi-SiGe/High-k Dielectrics/Si(111) Heterostructures: Interface Engineering by Amorphous Dielectrics and Lattice Matching by Mixed Epitaxial Buffer Oxides
T. Schroeder
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(50) Configurable Processors
Z. Stamenkovic
Lectures Taught under Auspice of the WUS Austria (Brain Gain Program), University of Nis, January 2007, Serbia

(51) Configurable Processors for SOC Design (Tutorial)
Z. Stamenkovic
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(52) 60 GHz Receiver Building Blocks in SiGe BiCMOS
Y. Sun, F. Herzel, J. Borngräber, R. Kraemer
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(53) Base Doping and Dopant Profile Control of SiGe NPN and PNP HBTs
B. Tillack, B. Heinemann, D. Knoll, H. Rücker, Y. Yamamoto
5th International Symposium on Control of Semiconductor Interfaces, Tokyo, November 12-14, 2007, Japan

(54) Base Doping and Dopant Profile Control of SiGe NPN and PNP HBTs
B. Tillack, B. Heinemann, D. Knoll, H. Rücker, Y. Yamamoto
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(55) Erste Erfahrungen mit der Zeiss-FIB / SEM NVision 40 für die STEM / TEM-Lamellen Präparation
G. Weidner
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(56) Skalierbare Kondensatoren in der drahtlosen Kommunikationstechnik
Ch. Wenger
Oberseminar des 2. Institutes für Physik der Universität Göttingen, April 27, 2007, Germany

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Ch. Wenger
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(58) Pole Figure Analysis for a Complex Characterization of Heteroepitaxial Structures of Silicon
P. Zaumseil
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(59) X-Ray Characterization of New High-k Dielectric Materials
P. Zaumseil
Monash University, Clayton, February 26, 2007, Australia

(60) X-Ray Diagnostic for Microelectronics Application at IHP in Frankfurt (Oder)
P. Zaumseil
Karlsruhe, December 13, 2007, Germany

Vorträge
Presentations

(1) Optical Properties of Si-Based Quantum Wells and Dots as a Function of their Structural Quality
V.D. Akhmetov, T. Mchedlidze, S. Kouteva-Arguirova, M. Kittler, R. Roelver, B. Berghoff, M. Foerst, B. Spangenberg
E-MRS Spring Meeting 2007, Strasbourg, May 28 - June 01, 2007, France

(2) Radially Non-Uniform Interaction of Nitrogen with Silicon Wafers
V.D. Akhmetov, G. Kissinger, A. Fischer, G. Morgenstern, G. Ritter, M. Kittler
12th International Conference on Defects-Recognition, Imaging and Physics in Semiconductors (DRIP XII), Berlin, September 09 - 13, 2007, Germany

(3) Behavior of N Atoms on Atomic-Order-Nitrided $Si_{0.5}Ge_{0.5}$(100)
N. Akiyama, M. Sakuraba, B. Tillack, J. Murota
5th International Symposium on Control of Semiconductor Interfaces, Tokyo, November, 12-14, 2007, Japan

(4) Heat-Treatment Effect on Structure of Atomic-Order Nitrided $Si_{0.5}Ge_{0.5}$(100) Using Low Pressure CVD
N. Akiyama, M. Sakuraba, B. Tillack, J. Murota
3rd International Workshop on New Group IV Semiconductor Nanoelectronics, Sendai, November 07-08, 2007, Japan

(5) Structural Change of Atomic-Order Nitride Formed on $Si_{1-x}Ge_x$(100) and Ge(100) by Heat Treatment
N. Akiyama, M. Sakuraba, B. Tillack, J. Murota
5th International Conference on Silicon Epitaxy and Heterostructures (ICSI-5), Marseille, May 20-24, 2007, France

(6) Effect of Laser Annealing on Crystallinity of the Si Layers in Si / SiO_2 Multiple Quantum Wells
T. Arguirov, T. Mchedlidze, V.D. Akhmetov, M. Kittler, R. Roelver, B. Berghoff, M. Foerst, B. Spangenberg
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(7) Effect of Laser Annealing on Crystallinity of the Si Layers in Si / SiO_2 Multiple Quantum Wells
T. Arguirov, T. Mchedlidze, S. Kouteva-Arguirova, M. Kittler
BMBF-Projekt-Treffen „Bandstrukturdesign: Ladungsträgertransport in Si-basierten Quantenstrukturen für zukünftige Höchsteffizienz-Solarzellen“, Aachen, May 22-23, 2007, Germany

(8) Optimierung von Antireflexionsschichten für Solarzellen
J. Bauer, W. Mehr, B. Tillack
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(9) Optische Optimierung von Solarzellen
J. Bauer
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(10) Profiling of Texture Gradients by Anomalous X-Ray Diffraction
M. Birkholz
27th Bessy User Meeting, Berlin, December 06, 2007, Germany

(11) Overview IHP Design Kits and Modeling
U. Biswurm
6th Workshop High-Performance SiGe BiCMOS for Wireless and Broadband Communication, Frankfurt (Oder), September 10, 2007, Germany

(12) Layer Processing for Future Process Technology
D. Bolze, B. Tillack
Nutzergruppe RTP, Rossendorf, November 08, 2007, Germany

(13) High Resolution Rutherford Backscattering Spectrometry for Investigating Interdiffusion of Thin Films
Ch. Borschel, M. Schnell, M. Uhrmacher, C. Ronning, Ch. Wenger, H. Hofsäss
DPG Spring Meeting, Regensburg, March 26-30, 2007, Germany

(14) Interdiffusion at the Interface of High-k Pr_2O_3 Layers Grown on Si
Ch. Borschel, M. Schnell, H. Hofsäss, Ch. Wenger, C. Ronning
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(15) Interdiffusion at the Interface of High-k Pr_2O_3 Layers Grown on Si
Ch. Borschel, M. Schnell, H. Hofsäss, Ch. Wenger, C. Ronning
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(16) IMPACT - A Family of Cross-Layer Transmission Protocols for Wireless Sensor Networks
M. Brzozowski, R. Karnapke, J. Nolte
The 1st International Workshop on Next Generation Networks for First Responders and Critical Infrastructure, IEEE, New Orleans, April 13, 2007, USA

(17) Design of Fully Differential OpAmps for GHz Range Applications
A. Budyakov, K. Schmalz, N.N. Prokopenko, J.C. Scheytt, P. Ostrovskyy
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(18) 76-81 GHz Short-Range Radar MMICs in Si / SiGe BiCMOS Technology
S. Chartier, B. Schleicher, L. Liu, A. Trasser, H. Schumacher, G.G. Fischer, H. Höhnemann
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(19) A Fully Integrated Fully Differential Low-Noise Amplifier for Short Range Automotive Radar Using a SiGe:C BiCMOS Technology
S. Chartier, B. Schleicher, F. Korndörfer, S. Glisic, G.G. Fischer, H. Schumacher
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(20) SiGe Millimeter-Wave Dynamic Frequency Divider with Enhanced Sensitivity Incorporating a Transimpedance Stage
S. Chartier, L. Liu, G.G. Fischer, S. Glisic, H. Höhnemann, A. Trasser, H. Schumacher
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(21) The Effects of X-Ray and Proton Irradiation on a 200 GHz / 90 GHz Complementary (npn + pnp) SiGe:C HBT Technology
R.M. Diestelhorst, S. Finn, B. Jun, A.K. Sutton, P. Cheng, P.W. Marshall, J.D. Cressler, R.D. Schrimpf, D.M. Fleetwood, H. Gustat, B. Heinemann, G.G. Fischer, D. Knoll, B. Tillack
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(22) A Hardware Accelerated Implementation of the IEEE 802.15.3 MAC Protocol
D. Dietterle, J.-P. Ebert, R. Kraemer
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(23) SiGe Bipolar Transistors for Harsh Radiation Environments
S. Diez, M. Ullan, F. Campabadal, M. Lozano, G. Pellegrini, D. Knoll, B. Heinemann
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(24) Glukosesensor - auf Basis der Affinitätsviskosimetrie - Entwicklung eines neuartigen Mikrosystems mit der 0,25 µm SiGe BiCMOS Technologie
K.-E. Ehwald
Arbeitskreis „Freunde der Mikroelektronik / Solartechnik" im VBIW Verein Brandenburgischer Ingenieure und Wirtschaftler e.V., Frankfurt (Oder), January 24, 2007, Germany

(25) Influence of Halo Implant on Leakage Current and Sheet Resistance of Ultra-Shallow P-N Junctions
V.N. Faifer, D.K. Schroder, M.I. Curent, T. Claryssee, P.J. Timans, T. Zangerle, W. Vandervorst, T.M.H. Wong, A. Moussa, S. McCoy, J. Gelpey, W. Lerch, S. Paul, D. Bolze
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(26) Leakage Current and Dopant Activation Characterization of Spe / Halo CMOS Junctions with Non-Contact Junction Photo-Voltage Metrology
V.N. Faifer, D.K. Schroder, M.I. Curent, T. Claryssee, P.J. Timans, T. Zangerle, W. Vandervorst, A. Moussa, S. McCoy, J. Gelpey, W. Lerch, S. Paul, D. Bolze
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G.G. Fischer, S. Glisic
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(28) A Low Phase Noise Integrated SiGe 18…20 GHz Fractional-N Synthesizer
R. Follmann, D. Köther, T. Kohl, M. Engels, V. Heyer, K. Schmalz, F. Herzel, W. Winkler, S. Osmany, U. Jagdhold
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(29) Characterization of Silicide Stacks by Combination of Spectroscopic Ellipsometry and Reflectometry
O. Fursenko, D. Bolze, I. Costina, P. Zaumseil, T. Huelsmann, J. Niess, W. Lerch
4th International Conference on Spectroscopic Ellipsometry (ICSE-4), Stockholm, June 11-15, 2007, Sweden

(30) Doping Concentration Control of SiGe Layers by Spectroscopic Ellipsometry
O. Fursenko, J. Bauer, P. Zaumseil, Y. Yamamoto, B. Tillack
5th International Conference on Silicon Epitaxy and Heterostructures (ICSI-5), Marseille, May 20-24, 2007, France

(31) Self-assembled Single Crystalline Ge Nanodots on Twin-free Pr_2O_3
A. Giussani, T. Schroeder, C. Mocuta, T.-H. Metzger, P. Formanek, D. Geiger, H. Lichte
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(32) The Influence of Lattice Oxygen on the Initial Ge Growth Behaviour on Cubic PrO_2(111) Films
A. Giussani, O. Seifarth, T. Schroeder
Surface and Interface Seminar at University of Osnabrück, August 20, 2007, Germany

(33) 60 GHz Channel Plan Proposal
E. Grass, P. Pagani, A. Bourdoux
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(34) 60 GHz Wireless Communication Systems – WWRF-WG5 White Paper
E. Grass
Wireless World Research Forum (WWRF18), Helsinki, June 14, 2007, Finland

(35) Ätzstopp-Phänomene beim Plasmaätzen tiefer Trenche für sub-100nm-Technologien
S. Günther, H.H. Richter, S. Marschmeyer, G. Weidner, H. Silz, I. Costina, K. Schulz, S. Berger
13. Fachtagung Plasmatechnologie, Bochum, March 05-07, 2007, Germany

(36) De-embedding and Modelling of pnp SiGe HBTs
D. Hadziabdic, C. Jiang, T.K. Johansen, V. Krozer, G.G. Fischer, B. Heinemann
European Microwave Week, München, October 08-12, 2007, Germany

(37) A 30 GS/s 4-Bit Binary Weighted DAC in SiGe BiCMOS Technology
S. Halder, H. Gustat
BCTM 2007, Boston, September 30 - October 03, 2007, USA

(38) Design of High Speed Data Converter Computer Components in SG25H1
S. Halder
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(39) BiCMOS Technologies for High-Performance SiGe:C pnp HBTs
B. Heinemann
Kolloquium TU Dresden, July 09, 2007, Germany

(40) Single-Chip Fractional-N Synthesizer for Space Applications in SGB25VD
F. Herzel
6th Workshop High-Performance SiGe BiCMOS for Wireless and Broadband Communication, Frankfurt (Oder), September 10, 2007, Germany

(41) Infrared Light Emission from Porous Silicon
G. Jia, W. Seifert, M. Kittler
12th International Conference on Defects-Recognition, Imaging and Physics in Semiconductors (DRIP12), Berlin, September 09-13, 2007, Germany

(42) An Attempt to Specify Thermal History in CZ Silicon Wafers and Possibilities for its Modification
G. Kissinger, A. Sattler, T. Müller, W. von Ammon
ICDS-24, Albuquerque, New Mexico, July 22-27, 2007, USA

(43) Contamination During High Temperature Treatments in SiC Reactor Tubes
G. Kissinger, A. Fischer, V.D. Akhmetov, T. Mchedlidze, W. Seifert, S. Suckow, M. Kittler
SiWEDS Review Meeting of Spring 2007, Chicago, May 10-11, 2007, USA

(44) Horizontal Versus Vertical Annealing of Silicon Wafers at High Temperatures
G. Kissinger, A. Fischer, G. Ritter, V. Akhmetov, M. Kittler
GADEST 2007, Erice, October 14-19, 2007, Italy

(45) Modeling of Oxide Precipitate Nucleation in Silicon Using ab-initio Calculations and Classical Nucleation Theory
G. Kissinger, J. Dabrowski, A. Sattler, T. Müller, W. von Ammon
Forum on the Science and Technology of Silicon Materials 2007, Niigata, November, 12-14, 2007, Japan

(46) Verification of a Method to Detect Grown-In Oxide Precipitate Nuclei in Czochralski Silicon
G. Kissinger, A. Sattler, J. Dabrowski, W. von Ammon
ALTECH 2007, München, September 13-14, 2007, Germany

(47) Verification of a Method to Detect Grown-in-Oxide Precipitate Nuclei in Czochralski Silicon
G. Kissinger, A. Sattler, J. Dabrowski, W. von Ammon
Analytical and Diagnostic Techniques for Semiconductor Materials, Devices, and Processes, ECS Fall Meeting, Washington, October 07-12, 2007, USA

(48) Bisherige Arbeiten am IHP zur Materialforschung für Solar-Si in BMBF-, BMU- und EU-Projekten
M. Kittler, W. Seifert
IHP-Symposium „Fortschritte in der Photovoltaik", Frankfurt (Oder), April 18, 2007, Germany

(49) IHP-Ergebnisse zum SILEM-Projekt im Zeitraum August 2006 bis April 2007
M. Kittler, W. Seifert, T. Arguirov, G. Jia, T. Mchedlidze
BMBF-Projekt-Treffen „SILEM", Stuttgart, April 24-25, 2007, Germany

(50) Silicon-Based Light Emitters for Nanooptics
M. Kittler, M. Reiche, W. Seifert, T. Arguirov, T. Wilhelm, X. Yu, T. Mchedlidze
2nd IEEE International Conference on Nano / Micro Engineered and Molecular Systems (NEMS 2007), January 16-19, 2007, Bangkok, Thailand

(51) PNP SiGe:C HBT Optimization in a Low-Cost CBiCMOS Process
D. Knoll, B. Heinemann, Y. Yamamoto, H.-E. Wulf, D. Schmidt
BCTM 2007, Boston, September 30 - October 02, 2007, USA

(52) ADS Design Kits, Momentum in RFDE
F. Korndörfer, T. Mausolf
RFIC Workshop, Frankfurt (Oder), January 23, 2007, Germany

(53) Optimization of the Substrate Parameters for EM Stimulators
F. Korndörfer, F. Sischka
IEEE MTT-S International Microwave Symposium, Honolulu, June 03-08, 2007, Hawaii

(54) Optimization of the Substrate Parameters for EM Stimulators
F. Korndörfer, F. Sischka
MOS Arbeitskreis, München, September 14, 2007, Germany

(55) Drahtlose Kommunikationsanwendungen im Flugzeug
R. Kraemer
Vortrag bei Diehl Aerospace GmbH, Nürnberg, June 28, 2007, Germany

(56) Drahtlose Technologien für Schraubertechnik
R. Kraemer
Bosch-Workshop Fertigungstechnologie, Regensburg, October 17, 2007, Germany

(57) Networking Aspects of Car2Car Communication
R. Kraemer
WWRF19 Meeting, Chennai, November 05 - 07, 2007, India

(58) Optimization of ARC Films Deposited by PECVD
B. Kuck, J. Bauer, O. Fursenko
Workshop Nutzergruppe PECVD, IISB Erlangen, July 10, 2007, Germany

(59) Probleme und Optimisierungsansätze im Prozess STI Fill bei der Entwicklung einer 0,13-µm-Technologie
B. Kuck
Workshop Nutzergruppe PECVD, IISB Erlangen, November 08, 2007, Germany

(60) A Middleware Approach to Configure Security in WSN
P. Langendörfer, S. Peter, K. Piotrowski, R. Nunes, A. Casaca
1st ERCIM Workshop on eMobility, Coimbra, May 21, 2007, Portugal

(61) Advanced Activation and Deactivation of Arsenic Implanted Ultra-Shallow Junctions Using Flash and Spike + Flash Annealing
W. Lerch, S. Paul, J. Niess, S. McCoy, J. Gelpey, D. Bolze, F. Christiano, F. Severac, S.A. Martinez, P. Pichler
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(62) Advanced Activation and Deactivation of Arsenic Implanted Ultra-Shallow Junctions Using Flash and Spike + Flash Annealing
W. Lerch, S. Paul, J. Niess, S. McCoy, J. Gelpey, D. Bolze, F. Christiano, F. Severac, S.A. Martinez, P. Pichler
Nutzergruppe RTP, Rossendorf, November 08, 2007, Germany

(63) Atomic-Vapour-Deposited HfO_2 and $Sr_4Ta_2O_9$ Layers for Metal-Insulator-Metal Application
M. Lukosius, Ch. Wenger, T. Schroeder, J. Dabrowski, R. Sorge, I. Costina, H.-J. Müssig, S. Pasko, Ch. Lohe
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(64) Interface Properties of $Pr_xAl_{2-x}O_3$ (x = 0, 1, 2) High-k Dielectrics on TiN Studied by Synchrotron Radiation X-Ray Photoelectron Spectroscopy
G. Lupina, T. Schroeder, Ch. Wenger, J. Dabrowski, G. Lippert, H.-J. Müssig
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(65) MBE Deposition of Hf-based Perovskite Dielectrics on TiN
G. Lupina, P. Dudek, G. Kozlowksi, G. Lippert, Ch. Wenger, T. Schroeder, P. Zaumseil, J. Dabrowski, H.-J. Müssig
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