Monday, September 8th

Opening 09:00 – 09:20

Mo-1 Plenary 09:20 – 10:20

Chaired by Hiroyuki Matsunami and Jim Choyke

9:20 <INVITED>
Mo1-1 Thick Epitaxial Layers Growth by Chlorine Addition: *F. La Via*; CNR-IMM sezione di Catania / LPE, Italy

9:50 <INVITED>
Mo1-2 Perspectives of SiC Power Devices in Highly Efficient Renewable Energy Conversion Systems: *P. Zacharias*; Universität Kassel, Germany

Coffee Break 10:20 – 10:50

Mo-2 Defects 1 10:50 – 12:40

Chaired by John Steeds and Efstathios Polychroniadis

10:50 <INVITED>
Mo2-1 The Silicon vacancy in SiC: *E. Janzén*; Department of Physics, Chemistry and Biology, Linköping University, Sweden

11:20
Mo2-2 Pulsed EPR Studies of the Tv2a Center in 4H-SiC: *J. Isoya[1], T. Umeda[1], N. Mizuochi[1], and T. Ohshima[2]*; [1]University of Tsukuba, Japan, [2]Japan Atomic Energy Agency, Japan

11:40
Mo2-3 Antisite Pairs Identified As Dominant Irradiation Induced Defects in 4H-SiC: *U. Gerstmann[1,2], A.P. Seitsonen[2], F. Mauri[2], and H.J. von Bardeleben[3]*; [1]Department Physik, Fakultät für Naturwissenschaft, Universität Paderborn, Germany,[2] Institute de Minéralogie et de Physique des Milieux Condensés - IMPMC, Université Pierre et Marie Curie,France, [3] Institut des Nanosciences de Paris - INSP, Université Pierre et Marie Curie, France

12:00
Mo2-4 Identification of the Di-Carbon Antisite Defect in n-type 4H-SiC: *A. Gali[1], T. Umeda[2], E. Janzén[3], N. Morishita[4], T. Ohshima[4], and J. Isoya[2]*; [1]Department of Atomic Physics, Budapest University of Technology and Economics, Hungary, [2]University of Tsukuba, Japan, [3]Department of Physics, Chemistry and Biology, Linköping University, Sweden, [4]Japan Atomic Energy Agency, Japan

12:20
Mo2-5 Characterization of Screw Dislocations in a 4H-silicon Carbide Diode: *R. Tanuma[1], T. Tamori[1], Y. Yonezawa[1], H. Yamaguchi[2], H. Matsuhata[2], K. Fukuda[2], and K. Arai[2]*; [1]Fuji Electric Device Technology Co., Ltd, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

Lunch 12:40 – 13:45

Mo-P Poster I 13:45 – 15:45

Mo-IP-1 <INVITED> Fast Epitaxial Growth of 4H-SiC and Analysis of Defect Transfer: *H. Tsuchida*; Central Research Institute of Electric Power Industry (CRIEPI), Japan

Mo-IP-2 <INVITED> Spatial Profiling of Planar Defects in 4H-SiC Epilayers Using Micro-photoluminescence Mapping: *G. Feng*; Department of Electronic Science and Engineering, Kyoto University, Japan

MoP-1 Characterization of Deep Levels in High-Resistive 6H-SiC by Current Deep Level Transient Spectroscopy: *M. Kato, K. Kito, M. Ichimura*; Department of Engineering Physics, Electronics and Mechanics, Nagoya Institute of Technology, Japan

MoP-2 Investigation of Thermal Properties of Heavily Doped 4H-SiC Crystals by a Picosecond Transient Grating Technique: *P. Scajev, A. Kadys, K. Jarasiunas*; Institute of Materials Science and Applied Research, Vilnius University, Lithuania

MoP-3 C-V and DLTS analyses of linearly graded junctions; the case of Al+ implanted JTE p+n 4H-SiC diodes: *F. Fabbri*[1], *F.Moscatelli*[2], *A.Poggi*[2], *R. Nipoti*[2], *A. Cavallini*[1]; [1] Phos Lab, Università degli Studi di Bologna, Italy, [2] CNR-IMM of Bologna, Italy

MoP-4 Determination of Intrinsic Defects in High-Purity Semi-Insulating 4H-SiC by Discharge Current Transient Spectroscopy: *H. Matsuura, M. Takahashi, Y. Kagawa, S. Tano, T. Miyake*; Department of Electronic Engineering and Computer Science, Osaka-Communication University, Japan

MoP-5 Capacitance Spectroscopy Study of Midgap Levels in n-Type SiC Polytypes: *G.Alfieri*[1], *T.Kimoto*[1,2]; [1]Department of Electronic Science and Engineering, Kyoto University, Japan, [2]Photonics and Electronics Science and Engineering Center, Kyoto University, Japan

MoP-6 Large-Area Homoepitaxial Growth of Low-Doped Thick Epilayers for Power Devices with UBR > 4 kV: *B.Thomas*[1], *C. Hecht* [1], *B. Kallinger*[2]; [1]SiCED Electronics Development GmbH & Co. KG, Germany, [2]Fraunhofer Institute of Integrated Systems and Device Technology (IISB), Dept. Crystal Growth, Germany

MoP-7 Influence of Growth Rate and C/Si Ratio on the Step Geometry and Dislocation Densities during 4H-SiC Homoepitaxy: *B. Kallinger*[1], *B. Thomas*[2], *P. Berwian*[1], *J. Friedrich*[1]; [1]Fraunhofer Institute of Integrated Systems and Device Technology (IISB), Dept. Crystal Growth, Germany, [2]SiCED Electronics Development GmbH & Co., Germany

MoP-8 Uniformity Improvement of Planetary Epitaxial Growth Processes through Analysis of Intentionally Stalled SiC Wafers: *J. D. Oliver*[1], *B. H. Ponczak* [1], *R. P. Parikh* [2], *R.A. Adomaitis*[2]; [1]Northrop Grumman Electronic Systems, USA, [2]Department of Chemical and Biomolecular Engineering, and Institute for Systems Research, University of Maryland, USA

MoP-9 Liquid Phase Epitaxy of 4H-SiC Layers on On-Axis PVT Grown Substrates: *K. Kusunoki*[1], *K. Kamei*[1], *N. Yashiro*[1], *R. Hattori*[2]; [1]Corporate Research & Development Laboratories, Sumitomo Metal Industries, Japan, [2]Power Device Works, Mitsubishi Electric Corp., Japan

MoP-10 Aluminum Doping by Low Temperature Homoepitaxial Growth for Ohmic Contact Formation to p-type 4H-SiC: *B. Krishnan, S. P.Kotamraju, G. Melnychuk, N. Merrett, Y. Koshka*, Mississippi State University , USA

MoP-11 Low-Temperature Homoepitaxial Growth with SiCl4 Precursor Compared to HCl Assisted SiH4-Based Growth: *S. P.Kotamraju, G.Melnychuk, Y. Koshka*; Mississippi State University, USA

MoP-12 Growth of Thick 4H-SiC Epitaxial Layers on On-axis Si-Face Substrates with HCl Addition: *S.*

Leonel [2], H. Pedersen[1], A. Henry[1], S. Rao[2], O. Kordina[2], E. Janzén[1]; [1]Department of Physics, Chemistry and Biology, Linköping University, Sweden, [2]Caracal Inc., USA

MoP-13 The Effect of 4H-SiC Substrate Surface Scratches on Chemical Vapor Deposition Grown Homo-Epitaxial Layer Quality: *N.Zhang[1], Y. Chen[1], E. K. Sanchez[2], M. F. MacMillan[2],D. R. Black[3], M. Dudley[1]*; [1]Department of Materials Science and Engineering, Stony Brook University, USA, [2]Dow Corning Compound Semiconductor Solutions, USA, [3]National Institute of Standards and Technology, USA

MoP-14 Control of the Surface Morphology on Low Off Angled 4H-SiC Homoepitaxal Growth: *K. Kojima[1], H. Okumura[1], K. Arai[2]*; [1]Energy Semiconductor Electronics Research Laboratory, National Institute of Advanced Industrial Science and Technology, Japan, [2]Research and Innovation Promotion Office, National Institute of Advanced Industrial Science and Technology, Japan

MoP-15 Influence of Growth Rate and C/Si-ratio on the Formation of Point and Extended Defects in 4H-SiC Homoepitaxial Layers Investigated with DLTS: *B. Zippelius[1], M. Krieger[1], H. B. Weber[1], G. Pensl[1], B. Kallinger[2], J. Friedrich[2], B. Thomas[3]*; [1]Lehrstuhl für Angewandte Physik, Universität Erlangen-Nürnberg, Germany, [2]Fraunhofer Institute of Integrated Systems and Device Technology (IISB), Germany, [3]SiCED Electronics Development GmbH & Co. KG, Germany

MoP-16 Thick Epitaxial Layers (> 50 µm) Growth by Trichlorosilane at Very High Growth Rate: *F. La Via[1], G. Izzo[3], M. Mauceri[2], G. Condorelli[2], L.M.S. Perdicaro[2], G. Abbondanza[2], F. Portuese[2], S. Di Franco[1], L. Calcagno[3], G. Foti[3], D. Crippa[4]*; [1]CNR-IMM sezione di Catania, Italy, [2]Epitaxial Technology Center, Italy, [3]Physics Department, Catania University, Italy, [4]LPE, Italy

MoP-17 Growth of Smooth 4H-SiC Epitaxial Layers on 4º off-axis Si-Face Substrates: *A. Henry[1], S. Leone[1,2] , H. Pedersen[1], O. Kordina[2], E. Janzén[1]*; [1]Department of Physics, Chemistry and Biology, Sweden, [2]Caracal Inc., USA

MoP-18 A Comprehensive Study of Hydrogen Etching on the Major SiC Polytypes and Crystal Orientations: *C. L. Frewin[1], C.Coletti[2], C.Riedl[2], U. Starke[2], S. E. Saddow[1]*; [1]Department of Electrical Engineering, University of South Florida, USA, [2]Max-Planck-Institut fuer Festkoerperforschung, Germany

MoP-19 The Effect of Substrate Surface Scratch on Chemical Vapor Deposition Growth of SiC Epitaxial Layers: *N. Zhang[1], Y.i Chen[1], E. K. Sanchez[2], M.F. MacMillan[2], D. R. Black[3], M.Dudley[1]*; [1]Department of Materials Science and Engineering, Stony Brook University, USA, [2]Dow Corning Compound Semiconductor Solutions, USA, [3]National Institute of Standards and Technology, Gaithersburg, USA

MoP-20 HCL etching Behavior on Low-Tilt-Angle and Step-Free 4H-SiC Surfaces: *A. J. Trunek [1], J. A. Powell [2], P. G. Neudeck [3], M. Mrdenovich[4]*; [1] OAI, USA, [2]Sest Inc., USA, [3]NASA Glenn Research Center, USA, [4]Sierra Lobo, USA

MoP-22 Surface Morphology Improvement and Repeatable Doping Characterization of 4H-SiC Epitaxy grown on 4o Off-Axis 4H-SiC Wafers: *S. Sunkari[1], H. Das[2], Y. Koshka[2], J. Casady[1]*; [1] SemiSouth Laboratories, USA, [2]Mississippi State University, Department of Electrical and Computer Engineering, USA

MoP-23 Comparison Between Polishing Etching of Silicon Carbide (SiC) on-axis, 2º, 4º and 8º off-axis 4H Wafers C and Si-face 4H-SiC: *K. Kosciewicz[1,2], W.Strupinski[2], A. Brzozowski[2], A.Olszyna[1]*; [1]Materials Science and Engineering, Warsaw University of Technology, Poland, [2]Institute of Electronic Materials Technology, Poland

MoP-24 Spatial Distributions of Interfacial Dislocations and Dislocation Half-Loop Arrays in 4H-SiC Epi-wafers: *K. Momose[1], H.Tsuchida[2], K.Kojima[3], I. Kamata[2], M. Odawara[1], T.Takahashi[3], Y. Ishida[2], A. Bandoh[1]*; [1]SHOWA DENKO K.K. (SDK), Japan, [2]Central Research Institute of Electric Power Industry (CRIEPI), Japan, [3]National Institute of Advanced Industrial Science and Technology (AIST), Japan

MoP-25 High Energy Ion Irradiation of 4H-SiC Schottky Diodes: *G. Izzo[1], G. Litrico[1], A. Severino[2], C. Bongiorno[2], G. Foti[1], F. La Via[2], L. Calcagno[1]*; [1]Physics Department, Catania University, Italy, [2]CNR-IMM sezione di Catania, Italy

MoP-26 Far - Action Radiation Defects and Gettering Effects in 4H-SiC Implanted with Al Ions: *E. V. Kalinina, M. V. Zamoryanskaya, E. V. Kolesnikova, A. A. Lebedev*; Ioffe Physicotechnical Institute RAS, Russia

MoP-27 Temperature Dependence of Hole Impact Ionization Coefficient in 4H-SiC Photodiodes: *W. S. Loh[1], J. P. R. David[1], B. K. Ng[2], S. I. Soloviev[3], J. S. Ng[1], P. M. Sandvik[3], C. M. Johnson[4]*; [1]Department of Electronic and Electrical Engineering, University of Sheffield, U.K., [2] School of Electrical and Electronic Engineering, Nanyang Technological University, Korea, [3]Semiconductor Technology Laboratory, General Electric Global Research Center, USA., [4]School of Electrical and Electronic Engineering, University of Nottingham, U.K.

MoP-28 Photo-EPR Studies on Low-Energy Electron-Irradiated 4H SiC: *P. Carlsson[1], N.T. Son[1], J. Isoya[2], N. Morishita[3], T. Ohshima[3], H. Itoh[3], E. Janzén[1]*; [1]Department of Physics, Chemistry and Biology, Linköping University, Sweden, [2]University of Tsukuba, Japan, [3]Japan Atomic Energy Agency, Takasaki, Japan

MoP-29 Far-Action Radiation-Accelerated Diffusion of Defects in 6H-SiC Implanted with Heavy Ions: *D. B. Shustov[1], E. V. Kolesnikova[1], E. V. Kalinina[1], V. A. Skuratov[2], M. V. Zamoryanskaya[1]*; [1]Ioffe Physico-Technical Institute RAS, Russia, [2]Joint Institute for Nuclear Research, Dubna, Russia

MoP-30 4H-SiC Nuclear Radiation p-n- Detectors for Operation up to Temperature 375ºC: *A. M. Ivanov, E. V. Kalinina, N. B. Strokan*; Ioffe Physicotechnical Institute RAS, Russia

MoP-31 Operation of Al-Implanted SiC Nuclear Detectors Subjected to High Radiation Fluences at Temperatures of up to 250 ºC: *A. M. Ivanov[1], N. B. Strokan[1], A. A. Lebedev[1], V. V. Kozlovski[2]*; [1]Ioffe Physicotechnical Institute RAS, Russia, [2]St. Petersburg State Polytechnical University, Russia

MoP-32 The Impact of Schottky Barrier Tunneling on SiC-JBS Performance: *G. M. Dolny[1], R. L. Woodin[2], A. Witt[2], J. Shovlin[2]*; [1]Fairchild Semiconductor, PA, USA, [2]Fairchild Semiconductor, ME, USA

MoP-33 Influence of Defects in 4H-SiC Avalanche Photodiodes on Geiger-mode Dark Count Probability: *A.Vert, S. Soloviev, J. Fronheiser, P. Sandvik*; General Electric Global Research Center, USA

MoP-34 Charge Collection Properties of 6H-SiC Diodes by Wide Variety of Charged Particles up to several hundreds MeV: *S. Onoda[1], N. Iwamoto[1,2], M. Murakami[1,3], T. Ohshima[1], T. Hirao[1], K. Kojima[4], K. Kawano[2], I. Nakano[3]*; [1]Japan Atomic Energy Agency (JAEA), Japan, [2]The University of Electro-Communications (UEC), Japan, [3]Okayama University, Japan,[4]National Institute of Advanced Industrial Science and Technology (AIST), Japan

MoP-35 High Temperature Characteristics for UV Responsivity of 3C-SiC pn Photodiode: *Y. Hirabayashi, K. Akiyama, S. Kaneko*; Kanagawa Industrial Technology Center, Japan

MoP-36 Deep Level Transitions in Laser-Doped Silicon Carbide for White Light-Emitting Diodes: *S. Bet[1],, N. Quick[2], A. Kar[1]*; [1]Laser-Aided Manufacturing, Materials and Micro-processing Laboratory (LAMMMP), University of Central Florida (UCF), USA, [2]Applicote Associates, LLC, USA

MoP-37 Tuning the Spectral Response of 4H-SiC UV Detectors by Ion Irradiation: *A.Sciuto, F.Roccaforte, V.Raineri*; CNR-IMM, Stradale Primosole, Italy

MoP-38 Silicon Carbide UV Based Photovoltaic for Hostile Environments: *S. Barkera, R.C. Stevensb, K. Vassilevskic, I.P. Nikitinad, N.G. Wrighte, A.B. Horsfallf*; School of Electrical, Electronic and Computer Engineering, Newcastle University, U.K.

MoP-39 Collection Charge Efficiency in Low n-Doped 4H Silicon Carbide Crystal: *D. Puglisi[1], G. Foti[1], G. Bertuccio[2]*; [1]Department of Physics and National Institute of Nuclear Physics INFN – Catania University, Italy, [2]Department of Electronics Engineering and Information Science, Politecnico of Milano, Italy

MoP-40 Solar-Blind 4H-SiC Avalanche Photodiodes: *S. Soloviev, A. Vert, J. Fronheiser, P. Sandvik*; General Electric Global Research Center, USA

MoP-41 Carrier Generation Lifetimes in 4H-SiC Epitaxial Wafers: *G. Chung[1], M.J. Loboda[1], M.J. Marninella[2], D.K. Schroder[2], T. Isaacs-Smith[3], J.R. Williams[3]* ; [1]Dow Corning Compound Semiconductor Solutions, USA, [2]Department of Electrical Engineering and Center for Solid State Electronics Research, Arizona State University, USA, [3]Physics Department, Auburn University, USA

MoP-42 Wafer Level Recombination carrier lifetime measurements of 4H-SiC PiN Epitaxial Wafers: *G. Chung, M. J. Loboda, M. F. MacMillan, J. W. Wan*; Dow Corning Compound Semiconductor Solutions, USA

MoP-43 Long Carrier Lifetime in 4H-SiC Epilayers using Chlorinated Precursors: *A.Shrivastava[1], P. B. Klein[2], E.R. Glaser[2], J.D. Caldwell[2],T.S.Sudarshan[1]*; [1]University of South Carolina, Electrical Engineering Dept., USA, [2]Naval Research laboratory, USA

MoP-44 Influence of Structural defects on Carrier Lifetime in 4H Epitaxial Layers, Studied by High Resolution Optical Lifetime Mapping: *J. Hassan, J. P. Bergman*; Department of Physics, Chemistry and Biology, Linköping University of Technology, Sweden

MoP-45 Minority Carrier Lifetime Measurements in Specific Epitaxial 4H-SiC Layers by the Microwave Photoconductivity Decay: *L.Ottaviani, O. Palais, D. Barakel, M. Pasquinelli*; IM2NP, Université Aix-Marseille, France

MoP-46 Effect of Post Etch Process on Electrical Performances of 4H-SiC Schottky Diode: *I.-H. Kang[1], S.-C. Kim[1], Y.-M. Choi[2], S.-J. Joo[1], W. Bahng[1], B.-J. Park[3], G.-Y. Yeom[3], N.-K.Kim[1]*; [1]Korea Electrotechnology Research Institute (KERI), Korea, [2]KyungNam University, Korea, [3]SungKyunKwan University, Korea

MoP-47 Simulation of Ion Implantation in SiC; Dopant Profiling and Activation: *S. Morata, F.Torregrosa, T. Bouchet*; Ion Beam Services, France

MoP-48 Microstructural study of Fe-implanted SiC ; Comparison of Different Post-Implantation Treatments: *A. Declémy[1], C. Dupeyrat[1], M. Drouet[1], M. Viret[2], F. Ott[3]*; [1] PhyMat, Université de Poitiers, France, [2]CAPMAG/SPEC, Centre d'Etudes de Saclay, France, [3]CAPMAG/Laboratoire Léon Brillouin, Centre d'Etudes de Saclay,France

MoP-49 Electrochemial Polishing of p-Type 4H SiC: *Y. Ke, F. Yan, R. P. Devaty, W. J. Choyke*; Department of Physics and Astronomy, University of Pittsburgh, USA

MoP-50 The Effect of Slurry Composition and Flatness on Sub-Surface Damage Removal in Chemical Mechanical Polishing of 6H-SiC(0001): *G.-S. Lee[1], H.-H. Hwang[1], C.-H. Son[1], J.-W. Choi[1], W.-J. Lee[1], B.-C. Shin[1], J.-D. Seo[2], K.-R. Ku[2], H.-D. Jeong[3]*; [1]Electronic Ceramics Center (ECC), Department of Nano Technology, Dong-Eui University, Korea, [2]Crysband Co. Ltd, Korea, [3]G&P Technology Co. Ltd, Pusan National University, Keumjeong-gu, Korea

MoP-51 Spectroscopic Measurement of Electric Discharge Machining for Silicon Carbide: *T.Sugimoto[1], T. Noro[2], S. Yamaguchi[2], H. Majima[3], T. Kato[4]*; [1]Cooperative Research Center of Advanced Technology, Chubu University, Japan, [2]Department of Electrical Engineering, Chubu University, Japan, [3]THM, Akechi-cho, Japan, [4]National Institute of Advanced Industrial Science and Technology (AIST), Japan

MoP-52 Doping Level Dependence of Electrical Properties for p+n 4H-SiC Diode Formed by Al Ion Implantation: *M. Satoh[1], S.Nagata[1], T. Nakamura[1], H. Doi[2], M. Shibagaki[2]*; [1]Research Center of Ion Beam Technology and Dept. of EECE, Hosei University, Japan, [2]Canon-ANELVA Engineering, Japan

MoP-53 Bottom-up Routes to Porous Silicon Carbide: *S. Greulich-Weber[1],B. Friedel[2]*; [1]University of Paderborn, Faculty of Science, Department of Physics, Germany, [2]Cavendish Laboratory, Department of Physics, University of Cambridge, UK

MoP-54 Process Optimization for High Temperature SiC Lateral Devices: *M. Soueidan, M. Lazar, D. M. Nguyen, D. Tournier, C. Raynaud, D. Planson*; AMPERE, INSA-Lyon, France

MoP-55 Oxidation Process of SiC by RTP Technique: *N. Kwietniewski[1,2], K. Golaszewska [1],*

T.T. Piotrowski[1], W. Rzodkiewicz[1], T. Gutt[1], M. Sochacki[2], J. Szmidt[2], A. Piotrowska[1]; [1]Institute of Electron Technology, Poland, [2]Institute of Microelectronics and Optoelectronics, Warsaw University of Technology, Poland

MoP-56 Influence of Heating and Cooling Rates of Post-Implantation Annealing Process on Al-Implanted 4H-SiC Epitaxial Samples: *L.Ottaviani[1], S. Morata[2], F.Torregrosa[2]*; [1]IM2NP, Université Aix-Marseille, France, [2]Ion Beam Services, France

MoP-57 Effect of Graphite Cap for Implant Activation on Inversion Channel Mobility in 4H-SiC MOSFETs: *H. Naik, K. Tang, T.P. Chow*; Center for Integrated Electronics, Rensselaer Polytechnic Institute, USA

MoP-58 Use of micro-PL to Monitor the Process of Damage Introduction, its Development and Removal by Annealing: *J. W. Steeds*; Department of Physics, University of Bristol, UK

MoP-59 Evaluation of 6H-SiC Single Crystals by the Ultrasonic Microspectroscopy System: *Y. Ohashi[1], M. Arakawa[1], J. Kushibiki[1], B. M. Epelbaum[2], A. Winnacker[2]*; [1]Graduate School of Engineering, Tohoku University, Japan, [2]Department of Materials Science, University of Erlangen-Nuremberg,Germany

MoP-60 Accurate Measurements of Second-Order Nonlinear-Optical Coefficients of Silicon Carbide: *H. Sato[1], I. Shoji[1], J. Suda[2], T. Kondo[3]*; [1]Department of Electrical, Electronic, and Communication Engineering, Chuo University, Japan, [2]Department of Electronic Science and Engineering, Kyoto University, Japan, [3]Department of Materials Engineering, University of Tokyo, Japan

MoP-61 Characterization of 4H-SiC Analyzed by Cathodeluminescence and Electron-Beam Induced Current Methods: *T. Hatayama, T. Shimizu, H. Yano, Y. Uraoka, T. Fuyuki*; Graduate School of Materials Science, Nara Institute of Science and Technology, Japan

MoP-62 Photoluminescence-Topography of the p-Type Doped SiC-Wafers for Determination of Doping Inhomogeneity: *F. Oehlschläger[1], S. Juillaguet[2], H. Peyre[2], J.Camassel[2], P. Wellmann[1]*; [1]Department of Material Science – Electrical Engineering Materials, University of Erlangen-Nuremberg, Germany, [2]Groupe d'Etude des Semiconducteurs, Univ. Montpellier II, France

MoP-63 Advanced Topographic Resistivity Analysis of Semi-insulating SiC Substrates: *W. Jantz [1], R. Stibal [1], S. Müller [1], R. Yan [2], J. Hao[2]*; [1] Semimap Scientific Instruments GmbH, Germany, [2] Electronic Material Research Institute of Tianjin, China

MoP-64 Characterization of In-Grown Stacking Faults in 4H-SiC Epitaxial Layers by Cathodoluminescence: *S. I. Maximenko[1], J. A. Freitas, Jr.[1], A. Shrivastava[2], T. S. Sudarshan[2]*; [1]Naval Research Laboratory, USA, [2]Electrical Engineering Department, University of South Carolina, USA

MoP-65 Dislocation-induced birefringence in silicon carbide: *T.Ouisse[1], D.Chaussende[1], L.Auvray[2], E.Pernot[1], R.Madar[1]*; [1]LMGP, Grenoble, France, [2]LMI, Université Lyon 1, France

MoP-66 Features of Hot Hole Transport in 6H-SiC: *V. I. Sankin[1], P. P. Shkrebiy[1], A. A. Lepneva[1], A. G.Ostroumov[1], R.Yakimova[2]*; [1]Ioffe Physico-Technical Institute of RAS, Russia, [2]Department of Physics, Chemistry and Biology, Linköping University, Sweden

MoP-67 Spontaneous Polarization Effect on the Heterojunctions Based on the SiC Polytypes; An Analytical Approach: *S. Yu. Davydov, A. A. Lebedev*; Ioffe Physicotechnical Institute, Russian Academy of Sciences, Russia

MoP-68 Role of Spontaneous Polarization Effect in the Formation of the Energy diagram of the NH/3C/NH-SiC Heterstructure: *S. Yu. Davydov, A. A. Lebedev*; Ioffe Physicotechnical Institute, Russian Academy of Sciences, Russia

MoP-69 Investigation of Heat Transfer Through the Silicon Carbide Porous Source in Sublimation Growth of Silicon Carbide Single Crystal: *B.M.Sinelnikov[1], V.A Tarala[2], V.M. Shipilov [1], A.A. Lopatin[1]*; [1] North Caucasus State Technical University, Russia, [2] South scientific centre Russian Academy of Sciences,

Russia

MoP-70 Selective Excitation of the Phosphorus Related Photoluminescence in 4H-SiC: *I. G. Ivanov, J. Hassan, A. Henry, E. Janzén*; Department of Physics, Chemistry and Biology, Linköping University, Sweden

MoLN-1 Two Dimensional X-ray Diffraction Mapping of Basal Plane Orientation on SiC Substrates: *J. Palisaitis, P. Bergman and P.O.Å. Persson;* Department of Physics, Chemistry and Biology, Linköpings Universitet, Sweden

MoLN-2 In-situ Observation of Polytype Switches during SiC PVT Bulk Growth by High Energy X-ray Diffraction: *P.J.Wellmann[1], K.Konias[2], P.Hens[1], R.Hock[1], A.Magerl[1]*; [1]Materials for electrical engineering, University of Erlangen-Nürnberg, Germany, [2]Chair for Crystallography and Structural Physics, University of Erlangen-Nürnberg, Germany

MoLN-3 LPE Growth of Low Doped n type 4H-SiC layer on on-axis Substrate for Power Device Application: *R. Hattori[1], K. Kamei[2], K. Kusunoki[2], N. Yashiro[2] and S. Shimosaki[3]*; [1]Mitsubishi Electric Corp., Amagasaki, Japan, [2]Corporate Research & Development Laboratories, Sumitomo Metal Industries Ltd., Amagasaki, Japan, [3]Applied Products department, Osaka Titanium technologies Co., Japan

MoLN-4 Diffusion of Point Defects from Ion Implanted 4H-SiC: Cathodoluminescence Observation: *T. Mitani[1], R. Hattori[2], and Ma. Yoshikawa[1]*; [1]Toray Research Center, Otsu, Japan, [2]Mitsubishi Electric Corp., Amagasaki, Japan

MoLN-5 Point Defects in 4H-SiC MOSFET Studied by Electrically Detected Magnetic Resonance: *T. Umeda[1], K. Esaki[1], R. Kosugi[2], K. Fukuda[2], T. Ohshima[3], and J. Isoya[1]*; [1]University of Tsukuba, Japan, [2]Advanced Industrial Science and Technology, Tsukuba, Japan, [3]Japan Atomic Energy Agency, Takasaki, Japan

MoLN-6 Extended Study of the Step-bunching Mechanism during the Homoepitaxial Growth of SiC: *M. Camarda, A. La Magna, A. Severino, F. La Via*; CNR-IMM, Catania, Italy

MoLN-7 Avalanche Breakdown Characteristics of 4H-SiC Graded p+n Junction formed with Aluminum ion-implanted p+ layer: *S. Ono, S. Katakami and M. Arai*; New Japan Radio Co. Ltd., Saitama, Japan

MoLN-8 Avalanche Capability of Unipolar SiC Diodes: A Feature for Ruggedness and Reliability Improvement: *J. Hilsenbeck[1], M. Treu[1], R. Rupp[2], D. Peters[3] and R. Elpelt[3]*; [1]Infineon Technologies Austria AG, Villach, Austria, [2]Infineon Technologies AG, Neubiberg, Germany, [3]SiCED GmbH & Co KG, Erlangen, Germany

MoLN-9 4H and 6H-SiC Avalanche Photodiodes: *L. B. Rowland[1], J. L. Wyatt[1], J. A. Fronheiser [2], A. V. Vert[2], P. M. Sandvik[2], T. Borsa[3], J. Van Zeghbroeck[3], B. Van Zeghbroeck[3], and S. Babu[4]*; [1]Aymont Technology, NY, USA, [2]GE Global Research, NY, USA, [3]University of Colorado, Electrical and Computer Engineering, Boulder, USA, [4]NASA Goddard Space Flight Center, Greenbelt, USA

MoLN-10 Investigation of the Influence of Ion Implantation on Leakage Current in 4H:SiC PiN Diodes: *Y. Yonezawa[1,2], S. Nakamura[1,2], M. Gotoh[1,2], T. Tawara[1,2], K. Kajiwara[2], T. Tawara[2], H. Yamaguchi[3],H. Matsuhata[3], K. Fukuda[3], H. Okumura[3] and K. Arai[3]*; [1]Advanced Inverter Laboratory R&D Association for Future Electron Devices AIST, Umezono, Japan, [2]Fuji Electric Device Technology Co., Nagano, Japan, [3]ESERL, AIST, Ibaraki, Japan

Mo-3 Defects 2 — 15:45 - 17:35

Chaired by Peder Bergman and Sadafumi Yoshida

15:45 <INVITED>
Mo3-1 Nanocharacterisation of SiC Related Materials, Structures and Devices; Beyond Structural

Imaging to Charge Transport and Physical Parameters Determination: *V. Raineri*; CNR-IMM sezione di Catania, Italy

16:15
Mo3-2 Deep Levels Generated by Ion-Implantation in n- and p-Type 4H-SiC: *K. Kawahara[1], G. Alfieri[1], and T. Kimoto[1, 2;]* [1]Dept. of Electronic Sci. & Eng., Kyoto University, Japan, [2]Photonics and Electronics Science and Engineering Center, Kyoto University, Japan

16:35
Mo3-3 Interstitial Defects Introduced by Electron-Irradiation at 77 K in SiC: *N.T. Son[1], J. Isoya[2], N. Morishita[3], T. Ohshima[3], H. Itoh[3], A. Gali[4], and E. Janzén[1]*; [1]Department of Physics, Chemistry and Biology, Linköping University, Sweden, [2]University of Tsukuba, Japan, [3]Japan Atomic Energy Agency, Japan, [4]Budapest University of Technology and Economics, Hungary

16:55
Mo3-4 The influence of Growth Conditions on the Annealing of Irradiation Induced EH6,7 Defects in 4H-SiC: *I.Pintilie[1,2], L. S. Løvlie[2], K. Irmscher[3], G. Wagner[3], B. G. Svensson[2], and B. Thomas[4]*; [1]National Institute of Materials Physics, Romania, [2]Dept. of Physics, Oslo University, Norway, [3]Institut für Kristallzüchtung im Forschungsverbund Berlin e.V., Germany, [4]SiCED Electronics Development GmbH&Co., Germany

17:15
Mo3-5 Defects in Fast Chloride-Based 4H-SiC Epitaxy: *F. C. Beyer, H. Pedersen, A. Henry, E. Janzén*; Department of Physics, Chemistry and Biology, Linköping University, Sweden

Welcome Reception 19:00

Tuesday, September 9th

Tu-1 Cubic SiC 8:30 - 10:20

Chaired by Hiroyuki Nagasawa and Gabriel Ferro

8:30 <INVITED>
Tu1-1 Unseeded Sublimation Growth of High Quality 3C-SiC Single Crystals: *D. Chaussende*; Laboratoire des Matériaux et du Génie Physique, Grenoble INP, France

9:00
Tu1-2 High Quality Single Crystal 3C-SiC(111) Films Grown on Si(111): *C. Locke[1], R. Anzalone[2], A. Severino[2], C. Bongiorno[2], G. Litrico[3], F. La Via[2], and S. E. Saddow[1]*; [1]Department of Electrical Engineering, University of South Florida, USA, [2]CNR-IMM Catania, Italy, [3]Physics Department, Catania University, Italy

9:20
Tu1-3 Role of Substrate Disorientation in Relaxation of 3C-SiC Layers on Silicon: *M. Zielinski[1], M. Portail[2], S. Roy[2], S. Kret[3], T. Chassagne[1], M. Nemoz[2], and Y. Cordier[2]*; [1]NOVASiC, Chambéry, France, [2]CNRS-CRHEA, France, [3]Institute of Physics, Polish Academy of Sciences, Poland

9:40
Tu1-4 Towards Large Area (111) 3C-SiC Films Grown on Off-Oriented (111) Si Substrates: *A. Severino[1,2], R. Anzalone[1,2], C. Bongiorno[1], M. Italia[1], G. Abbondanza[3], M. Camarda[1], L. M. S. Perdicaro[3], G. Condorelli[3], M. Mauceri[3], F. La Via[1]*; [1]IMM-CNR, Catania, Italy, [2] Phys. Dept., University of Catania, Italy,

[3]Epitaxial Techn. Center, Italy

10:00
Tu1-5 Study on the Precipitation of 3C/4H From a Liquid Phase: *O. Kim-Hak[1], G. Ferro[1], J. Dazord[1], P. Chaudouët[2], and D. Chaussende[2]*; [1]Laboratoire des Multimatériaux et Interfaces, Lyon, France, [2]Laboratoire des Matériaux et du Génie Physique, INPGrenoble-CNRS, France

Coffee Break 10:20 - 10:50

Tu-2 Graphene on SiC 10:50-12:40

Chaired by Jean Camassel and Rositza Yakimova

10:50 <INVITED>
Tu2-1 Atomic and Electronic Structure of Epitaxial Graphene on SiC; the STM Approach: P. Mallet; Institut NEEL/CNRS – UJF, France

11:20
Tu2-2 Growth of Graphene Layers on Silicon Carbide: *W.Strupinski[1], R.Bozek[2], J.Borysiuk[1], K.Kosciewicz[1], A.Wysmolek[2], R.Stepniewski[2], and J.M.Baranowski[2]*; [1]Institute of Electronic Materials Technology, Poland, [2]Institute of Experimental Physics, University of Warsaw, Poland

11:40
Tu2-3 Raman and Electrical Investigation of Heteroepitaxial Graphene on SiC: *S. Shivaraman, M. V. S. Chandrashekhar, and M.G. Spencer*; School of Electrical and Computer Engineering, Cornell University, USA

12:00
Tu2-4 Quality Control of Graphene Layers Grown on SiC: *N. Camara[1], J.R. Huntzinger[2], A.Tiberj[2], G. Rius[1], B. Jouault[2], N. Mestres[3], P. Godignon[1], and J. Camassel[2]*; [1]CNM-IMB-CSIC, Barcelona, Spain, [2] University of Montpellier, France, [3]ICMAB-CSIC, Barcelona, Spain

12:20
Tu2-5 Study of the Electrical Characteristics of the CNT/SiC Interface: *S. Bianco, M. Castellino, S. Musso, S. Ferrero, L. Scaltrito, D. Perrone, A. Tagliaferro*; Department of Physics, Polytechnic of Turin, Italy

Lunch 12:40 – 13:45

Tu-P Poster II 13:45 – 15:45

Mo-IP-1 <INVITED> Fast Epitaxial Growth of 4H-SiC and Analysis of Defect Transfer: *H. Tsuchida*; Central Research Institute of Electric Power Industry (CRIEPI), Japan

Mo-IP-2 <INVITED> Spatial Profiling of Planar Defects in 4H-SiC Epilayers Using Micro-photoluminescence Mapping: *G. Feng*; Department of Electronic Science and Engineering, Kyoto University, Japan

TuP-1 Short-Circuit Oparation of SiC Buried Gate Static Induction Transistors (BGSITs): *K. Yano[1], Y. Tanaka[2], T. Yatsuo[2], A. Takatsuka[2], and K. Arai[2]*; [1]Interdisciplinary Graduate School of Medicine and Engineering, University of Yamanashi, Japan, [2]Energy Semiconductor Electronics Research Laboratory, National Institute of Advanced Industrial Science&Technology, Tsukuba, Japan

TuP-2 Radiation hardness of 4H SiC bipolar junction transistor: *A. Hallén[1], M. Nawaz[2], C. Zaring[2], M. Usman[1], M. Domeij[1], and M. Östling[1]*; [1]Department of Microelectronics and Materials Physics, Royal Institute of Technology, Sweden, [2]TranSiC AB, Kista, Sweden

TuP-3 Study of degradation in SiC bipolar junction transistors: *P.G. Muzykov[1], T. A. Rana[1], Qingchun (Jon) Zhang[2], Anant Agarwal[2], and T.S. Sudarshan[1]*; [1]Department of Electrical Engineering, University of South Carolina, Columbia, USA, [2]Cree, USA

TuP-4 Observation of a Multi-Defect Aggregate Deep Level Center in 4H SiC Bipolar Junction Transistors with Electrically Detected Magnetic Resonance: *C.J. Cochrane[1], P.M. Lenahan[1], and A.J. Lelis[2]*; [1]Penn State University, University Park, USA, [2]US Army Research Laboratory, USA

TuP-5 Surface Passivation of 4H-SiC for High Current Gain BJTs: *Y. Negoro[1] , A. Horiuchi[1], K. Iwanaga[1], S. Yokoyama[1], H. Hashimoto[1],K. Nonaka[1], Y. Maeyama[2], M. Sato[2], M. Shimizu[2], and H. Iwakuro[2]*; [1]Honda R&D Co., Saitama, Japan, [2]Shindengen Electric Mfg. Co., Saitama, Japan

TuP-6 4H-SiC Bipolar Junction Transistors with Graded Base Doping Profile: *J. Zhang[1], L. Fursin[1], X. Li[1], X. Wang[1], J. H. Zhao[2], B. L. VanMil[3], R. L. Myers-Ward[3], Ch. R. Eddy Jr.[3], and D. K. Gaskill[3]*; [1]United Silicon Carbide, Inc., USA, [2]SiCLAB ECE Dept., Rutgers University, USA, [3]Advanced SiC Epitaxial Research Laboratory, U.S. Naval Research Laboratory, USA

TuP-7 Voltage-current (V-I) characteristics of 1.5kV class pn junction TEG having p-well structures on (0001) 4H-SiC: *R. Kosugi[1], T. Sakata[2], Y. Sakuma[1], K. Suzuki[1], T. Yatsuo[1], H. Matsuhata[1], H. Yamaguchi[1], I. Nagai[1], K. Fukuda[1], H. Okumura[1], and K. Arai[1]*; [1]Energy Semiconductor Electronics Research Laboratory, National Institute of Advanced Industrial Science and Technology (AIST), [2]R&D Associations for Future Electron Devices, Tsukuba, JAPAN

TuP-8 Silicon Carbide Static Induction Transistor with Implanted Buried Gate: *K. Vassilevski[1], I. Nikitina[1], A. Horsfall[1], N. Wright[1], A.G. O'Neill[1], R. Gwilliam[2], and C.M. Johnson[3]*; [1]School of Electrical, Electronic and Computer Engineering, Newcastle University, United Kingdom, [2]Surrey Ion Beam Centre, Nodus Lab, ATI, University of Surrey, United Kingdom, [3]School of Electrical and Electronic Engineering, University of Nottingham, United Kingdom

TuP-9 Fabrication of 2.7 kV 13 mW.cm2 non Ion-Implanted 4H-SiC BJTs with Common-Emitter Gain of 50: *R. Ghandi , H.-S. Lee, M. Domeij, B. Buono, C.-M. Zetterling, and M. Östling*; School of Information and Communication Technology, KTH, Stockholm, Sweden

TuP-10 Simulations of open emitter breakdown voltage in SiC BJTs with non implanted JTE: *B. Buono, H. S. Lee, M. Domeij, R. Ghandi, C.-M. Zetterling, and M. Östling*; School of Information and Communication Technology, KTH, Stockholm, Sweden

TuP-11 Electrical Characterization of Large Area 800V Enhancement-Mode SiC VJFETs for High Temperature Applications: *A. Ritenour, V. Bondarenko, R. Kelley, and D.C. Sheridan*; SemiSouth Laboratories, Inc. Starkville, U.S.A.

TuP-12 2.5 kV, 4.2 mW.cm2 SiC VJFET for circuit protection applications: *I. Sankin, D.C. Sheridan, W. King, A. Mulkana, V. Bondarenko, P. Burks, and J.B. Casady*; SemiSouth Laboratories, Inc, Starkville, U.S.A.

TuP-13 Prolonged 500 ºC Operation of 6H-SiC JFET Integrated Circuitry: *P. G. Neudeck[1], D. J. Spry[1], L. Chen[2], C. W. Chang[3], G. M. Beheim[1], R. S. Okojie[1], L. J. Evans[1], R. Meredith[1], T. Ferrier[1], M. J. Krasowski[1], N. F. Prokop[1], and D. Lukco[3]*; [1]NASA Glenn Research Center, Cleveland, USA, [2]OAI, NASA Glenn, Cleveland, USA, [3]ASRC, NASA Glenn, Cleveland, USA

TuP-14 Initial Stage Modification for 6H-SiC Single Crystal Grown by the Physical Vapor Transport (PVT) Method: *J. Choi[1], C. Son[1], J. Choi[1], G. Lee[1], W. Lee[1], I. Kim[1], B. Shin[1], and K. Ku[2]*; [1]Electronic Ceramics Center (ECC), Department of Nano Technology, Dong-Eui University, Korea, [2]Crysband Co Ltd,

Busan, Korea

TuP-15 Germanium incorporation during PVT bulk growth of silicon carbide: *P. Hens[1], U. Künecke[1], K. Konias[2], R. Hock[2], and P. Wellmann[1]*; [1]Department of Material Science – Electrical Engineering Materials, University of Erlangen-Nuremberg, Germany, [2]Institute for Crystallography, University of Erlangen-Nürnberg, Germany

TuP-16 Polytype transformation during solution growth on 3C-SiC seed crystals: *K. Seki, R. Tanaka, T. Ujihara, and Y. Takeda*; Department of Crystalline Materials Science, Nagoya University, Japan

TuP-17 Solution growth on free-standing (001) 3C-SiC epilayers: *R. Tanakaa, K. Sekib, T. Ujiharac, and Y. Takeda*; Department of Crystalline Materials Science, Nagoya University, Japan

TuP-18 Top Seeded Solution Growth of 3C-SiC single crystals: *F. Mercier[1], D. Chaussende[1], J-M. Dedulle[1], M. Pons[2], and R. Madar[1]*; [1]Laboratoire des Matériaux et du Génie Physique, Grenoble INP – CNRS, France, [2]Science et Ingénierie des Matériaux et Procédés, Grenoble INP – CNRS, France

TuP-19 Growth 4H-SiC single crystals on 6H-SiC seeds with open back side by PVT method: *E. Tymicki[1], K. Grasza[1,2], K. Racka[1], M. Raczkiewicz[1], T. Łukasiewicz[1], M. Gała[1], K. Kościewicz[1,3], R. Diduszko[1], and R. BoŜek[4]*; [1]Institute of Electronic Materials Technology, Warsaw, Poland, [2]Institute of Physics, Polish Academy of Sciences, Warsaw, Poland, [3]Warsaw University of Technology, Faculty of Materials Science and Engineering, Poland, [4]Institute of Experimental Physics, Faculty of Physics Warsaw University, Poland

TuP-20 Hot wall and cold wall CVD grown polycrystalline beta-SiC - A comparative study: *S.K. Panda, J. Sengupta, and C. Jacob*; Materials Science Centre, Indian Institute of Technology, India

TuP-22 Characterization of 6H-SiC single crystals grown by PVT method using different source materials and open or closed seed backside: *K. Racka[1], E. Tymicki[1], M. Raczkiewicz[1], K. Grasza[1],[2], E. Jurkiewicz-Wegner[1], R. Jakieła[1,2], A. Brzozowski[1], M. Kozubal[1] and J. Krupka[3]*; [1]Institute of Electronic Materials Technology, Warsaw, Poland, [2]Institute of Physics, Polish Academy of Sciences, Warsaw, Poland, [3]Institute of Microelectronics and Optoelectronics of Faculty of Electronics and Information Technology of Warsaw University of Technology, Warsaw, Poland

TuP-23 Nitrogen doping of 3C-SiC Single Crystals Grown by CF-PVT: *J. Eid[1], I. Galben[1], G. Zoulis[1], D. Chaussende[1], S. Juillaguet[2], and J. Camassel[2]*; [1]Laboratoire des Matériaux et du Génie Physique, Grenoble INP – CNRS, France, [2]Groupe d'Etudes des Semiconducteurs, Montpellier, France

TuP-24 EBIC Analysis of Breakdown Failure Point in 4H-SiC PiN Diodes: *T. Ohyanagi[1], C. Bin[2], T. Sekiguchi[2], H. Yamaguchi[3], and H. Matsuhata[3]*; [1]Research and Development Association for Future Electron Devices, c/o AIST, Tsukuba, Japan, [2]National Institute for Materials Science, Tsukuba, Japan, [3]-ESERL, AIST, Tsukuba, Japan

TuP-25 Interface states and barrier heights on metal 4H-SiC Interfaces: *S. Khanna[1], A. Noor[1], M.S.Tyagi[2], and S.Neeleshwar[3]*; [1]CDAC, Noida, India, [2]JIIT, Noida, India, [3]GGSIPU, New Delhi, India

TuP-26 Nanoscale Electro-Structural Evolution of Nickel-Silicide Ohmic Contacts to 3C-SiC: *J. Eriksson[1],[2] , F. Roccaforte[1], F. Giannazzo[1], R. Lo Nigro[1], V. Raineri[1], J. Lorenzzi[3], G. Ferro[3]*; [1]CNR-IMM, Catania, Italy, [2]Scuola Superiore - Università di Catania, Italy, [3]Laboratoire des Multimateriaux et Interfaces, UCB-Lyon[1], France

TuP-27 On the formation of Ni-based ohmic contacts to 4H n-SiC: *A. V. Kuchuk[1,2], A. Piotrowska[2], V. P. Kladko[1], O. S. Lytvyn[1], R. Ratajczak[3], A. Turos[3], R. Jakiela[4], and A. Barcz[2,4]*; [1]V. Lashkaryov Institute of Semiconductor Physics, Kyiv, Ukraine, [2]Institute of Electron Technology, Warsaw, Poland, [3]The Andrzej Soltan Institute for Nuclear Studies, Warsaw, Poland, [4]Institute of Physics, Polish Academy of Sciences, Warsaw, Poland

TuP-28 Analysis of forward current-voltage characteristics of non-ideal Ti / 4H-SiC Schottky barriers: *P. Ivanov, A. Potapov, and T. Samsonova*; Ioffe Physico-Technical Institute, Saint-Petersburg, Russia

TuP-29 Measurement of lifetime temperature dependence in 3.3kV 4H-SiC PiN diode using OCVD technique: *N. Dheilly[1], D. Planson[1], P. Brosselard[2], J. Hassan[3], P. Bevilacqua[1], D. Tournier[1], J. Montserrat[2], C. Raynaud[1], and H. Morel[1]*; [1]Ampere-lab, INSA Lyon, France, [2]Instituto de Microelectrónica de Barcelona IMB-CNM (CSIC), Spain, [3]Department of Physics, Linköpings University, Sweden

TuP-30 Lifetime investigations of 4H-SiC pin power diodes: *S.A. Reshanov[1], W. Bartsch[2], B. Zippelius[1], and G. Pensl[1]*; [1]Lehrstuhl für Angewandte Physik, Universität Erlangen-Nürnberg, Germany, [2]SiCED Electronics Development GmbH & Co, Erlangen, Germany

TuP-31 Laser Deflection Method for Extracting Temperature Profiles and Carrier Distributions in 4H-SiC Power Diodes: *D. Werber, and G. Wachutka*; Institute for Physics of Electrotechnology, Munich University of Technology, Germany

TuP-32 Phase Inhomogeneity and Electrical Characteristics of Nickel Silicide Schottky Contacts Formed on 4H-SiC: *I. Nikitina[1], K. Vassilevski[1], A. Horsfall[1], N. Wright[1], A. G. O'Neill[1], S. K. Ray[2], C. M. Johnson[3]*; [1]School of Electrical, Electronic and Computer Engineering, Newcastle University, United Kingdom, [2]Dept. of Physics & Meteorology, IIT Kharagpur, India, [3]School of Electrical and Electronic Engineering, University of Nottingham

TuP-33 Electrical characterization of Al implanted 4H-SiC layers by four point probe and scanning capacitance microscopy: *F. Giannazzo[1], M. Rambach[2], D. Salinas[3], F. Roccaforte[1], and V. Raineri[1]*; [1]CNR-IMM, Catania, Italy, [2]Centrotherm, Blaubeuren, Germany, [3]STMicroelectronics, Catania, Italy

TuP-34 Greyscale Junction Termination for High-Voltage SiC Devices: *E. Imhoffa, F. Kub, and K. Hobart*; U.S. Naval Research Laboratory, Washington, U.S.A.

TuP-35 Influence of surface roughness on break down voltage of 4H-SiC SBD with FLR structure: *A. Kinoshita[1], T. Nishi[1], T. Ohyanagi[2], T. Yatsuo[1], K. Fukuda[1], H. Okumura[1], and K. Arai[1]*; [1]National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan, [2]Research and Development Association for Future Electron Devices, Tsukuba, Japan

TuP-36 4H-SiC Schottky barrier diodes using Mo-, Ti- and Ni-based contacts: D. Perrone[1], S. Ferrero[1], L.Scaltrito[1], C.F.Pirri[1], M.Naretto[1,2], G.Richieri[2] and L.Merlin[2]; [1]Physics Department, Politecnico di Torino, Italy, [2]Vishay Semiconductor, Torino, Italy

TuP-37 High Temperature Electrical Characterization of High Voltage SiC diodes passivated with polyamide: *S. Diaham[1], M. Locatelli[1], T. Lebey[1], M. Lazar[2], H. Vang[2], and D. Planson[2]*; [1]Laboratoire Laplace – Université de Toulouse, France, [2]Laboratoire Ampère – Institut National de Sciences Appliquées de Lyon, France

TuP-38 Doping Concentration Optimization for Ultra-low-loss 4H-SiC Floating Junction: *C. Ota[1], J. Nishio[1], K. Takao[1], T. Hatakeyama[1], T. Shinohe[1], K. Kojima[2], S. Nishizawa[2] and H. Ohashi[2]*; [1]Corporate Research & Development Center, Toshiba Corporation, Kawasaki, Japan, [2]National Institute of Advanced Industrial Science and Technology (AIST), Japan

TuP-39 Enhancement of 4H-SiC Schottky Diodes with Oxide Ramp Termination for High Current/ High Voltage Applications: *G. Brezeanu[1], M. Badila[2], C. Boianceanu[1], F. Udrea[3], D.Puscasu[4], A. Ioncea[5], G.A.J. Amaratunga[3], M. Avram[6]*; [1]University "POLITEHNICA", Bucharest, Romania, [2]Catalyst Semiconductor Inc., Sunnyvale, USA, [3]Department of Engineering, University of Cambridge, UK, [4]CEPROCIM SA, Bucharest, Romania, [5]METAV CD, Bucharest, Romania, [6]National Institute for R&D in Microtechnology, IMT-Bucharest, Romania

TuP-40 Characterization of 4H-SiC junction barrier Schottky diodes by admittance vs. temperature analyses: *C. Raynaud[1], D. M. Nguyen[1], P. Brosselard[2], A. Pérez-Tomás[2], D. Planson[1], and J. Millán[2]*;

[1]AMPERE Lab., INSA-Lyon, France, [2]Instituto de Microelectrònica de Barcelona IMB-CNM, (CSIC), Spain

TuP-41 Dislocations and triangular defects in low-temperature halo-carbon epitaxial growth and selective epitaxial growth: *H. Das, G. Melnychuk, and Y. Koshka*; Mississippi State University, USA

TuP-42 Formation Mechanism of Inverted Pyramid Defects in 4H-SiC Epilayers: *A..Shrivastava, P.Muzykov, and T.S.Sudarshan*; Electrical Engineering Dept., University of South Carolina, USA

TuP-43 Evolution upon annealing of structural defects in Helium Implanted 4H-SiC: *S. Leclerc, A. Declémy, D. Eyidi, M. Beaufort, and J. F. Barbot*; Laboratoire PhyMat, Chasseneuil, France

TuP-44 Formation of Extended Defects in 4H-SiC Induced by Ion Implantation/Annealing: *M. Nagano[1], H. Tsuchida[1], T. Suzuki[2], T. Hatakeyama[2], J. Senzaki[3] and K. Fukuda[3]*; [1]CRIEPI, Japan, [2]R&D Association for Future Electron Devices, Tsukuba, Japan, [3]AIST, Tsukuba, Japan

TuP-45 Spin-coupling in heavily nitrogen-doped 4H-SiC: *D.V. Savchenko[1,2], A. Pöppl[1], E.N. Kalabukhova[2], S. Greulich-Weber[3], E. Rauls[3], F. Mauri[4] and U. Gerstmann[3,4]*; [1]Fakultät für Physik und Geowissenschaften, Universität Leipzig, Germany, [2]Institute of Semiconductor Physics, Kiev, Ukraine, [3]Department Physik, Universität Paderborn, Germany, [4]Institute de Minéralogie et de Physique des Milieux Condensés, Université Pierre et Marie Curie, France

TuP-46 8H Stacking Faults in a 4H-SiC matrix; Simple Unit Cell or Double 3C Quantum Wells ?: *T. Robert[1], S. Juillaguet[1], M. Marinova[3], T. Chassagne[2], E. K. Polychroniadis[3], and J. Camassel[1]*; [1]Groupe d'Etude des Semiconducteurs, Université Montpellier II, France, [2]Novasic, Savoie Technolac, France, [3]Physics Department, Aristotle University, Thessaloniki

TuP-47 Optical identification of Mo related deep level defect in 4H and 6H SiC: *A. Gällström[1], B. Magnusson[1,2], and E. Janzén[1]*; [1]Department of Physics, Chemistry and Biology, Linköping University, Sweden, [2]Norstel AB, Norrköping, Sweden

TuP-48 Anti-site defects are found at large distances from localised H and He ion implantations: *J. W. Steeds[1], N. Peng[2] and W. Sullivan[1]*; [1]Department of Physics, University of Bristol, United Kingdom, [2]Surrey Ion Beam Centre, University of Surrey, United Kingdom

TuP-49 Investigation of the metal - insulator transition in n--3C-SiC epitaxial films.: *A. A. Lebedev[1], P. L. Abramov[1], N. V. Agrinskaya[1], V. I. Kozub[1], A. N. Kuznetsov[1], S. P. Lebedev[1], G. A. Oganesyan[1], A. V. Chernyaev[1], D. V. Shamshur[1] and M.O.Skvortsova[2]*; [1]Ioffe Physicotechnical Institute, St. Petersburg, Russia, [2]Institute of Solid State Physics,Moscow region., Russia

TuP-50 Two-branch boron diffusion from gas phase in n-type 4H-SiC: *A. V. Bolotnikov[1], P. G. Muzykov[1], Q. Zhang[2], A. K. Agarwal[2], and T. S. Sudarshan[1]*; [1]Department of Electrical Engineering, University of South Carolina, USA, [2]Cree Inc., USA

TuP-51 Effect of substrate doping on the magnetic behaviour of Ni-implanted SiC: *J. García-López[1], Y. Morilla[1], H. J. von Bardeleben[2], J. L. Cantin[2], J. Sánchez-Marcos[3], C. Prieto[3], F. Mompean[3], G. Battistig[4], Z. Zolnai[4] and J. C. C-Wong[1]*; [1]Centro Nacional de Aceleradores, Sevilla, Spain, [2]Institut des Nanosciences, Paris,France, [3]Instituto de Ciencia de Materiales de Madrid, CSIC, Spain, [4]Research Institute for Technical Physics and Materials Science, Budapest, Hungary

TuP-52 Crystalline quality and surface morphology of 3C-SiC films on Si evaluated by electron channeling contrast imaging: *Y. N. Picard[1], C. Locke[2], C. L. Frewin[2], M. E. Twigg[1], and S. E. Saddow[2]*; [1]Electronics Science and Technology Division, Naval Research Laboratory, USA, [2]Department of Electrical Engineering, University of South Florida, USA

TuP-53 Optical investigation of electronic properties in bulk and surface region of sublimation-grown 3C-SiC crystals: *G. Manolis[1], K. Jarasiunas[1], I.G. Galben[2], and D. Chaussende[2]*; [1]Department of Semiconductor Optoelectronics, Vilnius University, Lithuania, [2]Laboratoire des Matériaux et du Génie Physique, INP Grenoble, France

TuP-54 A TEM study of inversion domain boundaries annihilation mechanism in 3C-SiC during growth: *A. Mantzari, C. B. Lioutas and E. K. Polychroniadis*; Physics department, Aristotle University of Thessaloniki, Greece

TuP-55 Structural and Electrical Properties of Poly-3C-SiC Layer Grown from P Ion Implanted 4H-SiC: *M. Satoh, T. Jinushi and T. Nakamura*; Reserach Center of Ion Beam Technology and Dept. EECE, Hosei University Koganei, Japan

TuP-56 Formation of different carbon phases on SiC: *J. Pezoldt*; FG Nanotechnologie, TU Ilmenau, Germany

TuP-57 Correlation of Crystalline Defects to 4H-SiC Device Electrical Properties: *D. Vandenberg[1], B. Odekirk[1], D. K. Gaskill[2], R. L.Myers-Ward[2], B. L.VanMil[2], R. T.Holm[2], and C. R. Eddy*, Jr.[2]; [1]Microsemi Corporation, Power Products Group, USA, [2]Advanced SiC Epitaxial Research Laboratory, Naval Research Laboratory, USA

TuP-58 SIMS investigation of Gex(4H-SiC)1-x solid solutions synthesized by Ge-ion implantation up to x=0.2: *H. Peyre[1], J. Pezoldt[2], M. Voelskow[3], W. Skorupa[3], and J. Camassel[1]*; [1]Groupe d'Etude des Semiconducteurs, Univ. Montpellier II, France, [2]Nanotechnology, Institute of Micro-and Nanotechnologies, TU Ilmenau, Germany, [3]Instiute of Ion Beam Physics and Materials Research, FZ Dresden-Rossendorf, Germany

TuP-59 Beta-Silicon Carbide Nanoparticles synthesis by Sol-Gel Processing: *R. Sharma, and V. D. Vankar*; Nanostech Laboratory, Indian Institute of Technology Delhi, India

TuP-60 Atomic and electronic structure of epitaxial graphene: *L. Magaud, F. Varchon, P. Mallet, C. Naud, J.-Y. Veuillen*; Institut Néel, Grenoble, France

TuP-61 Nanoscale current transport at graphene/SiC interface in a few layers graphene deposited on SiC: *F. Giannazzo[1], S. Sonde[1,2], and V. Raineri[1]*; [1]CNR-IMM, Catania, Italy, [2]Scuola Superiore di Catania, Italy

TuP-62 TEM investigation of graphene layers on 4H-SiC(0001): *J.Borysiuk[1], W.Strupinski[1], R.Bo ek[2], A.Wysmołek[2] and J.M.Baranowski[2]*; [1]Institute of Electronic Materials Technology, Warsaw, Poland, [2]Institute of Experimental Physics, Warsaw, Poland

TuP-63 Investigation of graphene growth of 4H-SiC: *A. Castaing, O. J. Guy, M. Lodzinski, S. P. Wilks*; School of Engineering, Swansea University, UK

TuP-64 Structural and electronic properties of epitaxial graphene on SiC(0001): *C. Riedl[1], D.S. Lee[1], J. Smet[1], L. Vitali[1], R. Ohmann[1], I. Brihuega[1], A. Zakharov[2], C. Virojanadara[1,3], K. von Klitzing[1], K. Kern[1], and U. Starke[1]*; [1]Max-Planck-Institut für Festkörperforschung, Stuttgart, Germany, [2]MAX-Lab, Lund University, Sweden, [3]Materials Science Division, Linköping University, Sweden

TuP-65 Graphene formation on SiC substrates: *B .L. VanMil, R. L. Myers-Ward, C. R. Eddy Jr., G. G. Jernigan, J. C. Culbertson, P. M. Campbell and D. K. Gaskill*; Electronic Science and Technology Division, U.S. Naval Research Laboratory, U.S.A.

TuP-66 Raman and AFM studies of few-layer graphene on SiC: *J. Huntzinger[1], A. Tiberj[1], M. Martin[1], N. Camara[2], J. Sauvajol[3], P. Godignon[2] and J. Camassel[1]*; [1]GES, Université Montpellier II, France, [2]IMB-CNM-CSIC, Barcelona, Spain, [3]LCVN Université Montpellier II, France

TuP-67 Structural and optical properties of 3C SiC/SiO2 core-shell nanowires: *F.Rossi[1], G.Attolini[1], G. Salviati[1], F. Fabbri[2], A. Cavallini[2], B. Dierre[3], N. Fukata[4], and T. Sekiguchi[3]*; [1]IMEM-CNR Institute, Parma, Italy, [2]Phods Lab, University of Bologna and CNISM, Italy, [3]Advanced Electronic Materials Center, Tsukuba, Japan, [4]International Center for Materials Nanoarchitectonics, National Institute for Materials Science & PRESTO JST, Tsukuba, Japan

TuP-68 Influence of Spontaneous Polarization of 6H SiC on Few Layer Graphene Films: *M. V. S.*

Chandrashekhar, S. Shivaraman, and M.G. Spencer; Department of Electrical and Computer Engineering Cornell University, USA,

TuP-69 Textile Solar Cells based on SiC micro wires: *S. Greulich-Weber[1], M. Zöller[1] and B. Friedel[2]*; [1]Department of Physics, University of Paderborn, Germany, [2]Cavendish Laboratory, University of Cambridge, United Kingdom

TuP-70 Investigation of Si / 4H-SiC hetero-junction growth and electrical properties: *O.J. Guy[1], A. Pérez-Tomás[2], M. R. Jennings[2], M. Lodzinski[1], A. Castaing[1], P. A. Mawby[2], J. A. Covington[2], R. Hammond[3], D. Connolly[4], S. Jones[4], J. Hopkins[5], T. Wilby[6], N. Rimmer[6], S. P. Wilks[1], K. Baker[7], S. Evans[8]*; [1]School of Engineering, Swansea University, UK [2]School of Engineering, University of Warwick, UK [3]Epitec Ltd., UK [4]Semelab plc., UK [5]Surface Technology Systems Newport, UK [6]Aviza Technologies, Newport, UK [7]Pure Wafer International, Swansea, UK [8]ESEMI Ltd. Belfast, UK

TuLN-1 Fabrication and Characterization of Cr-based Schottky Diode on n-type 4H-SiC: *C. Koliakoudakis[1], J. Dontas[2], S. Karakalos[2], M. Kayambaki[1], S. Ladas[2], G. Konstantinidis[1], K. Zekentes[1], S. Kennou[2]*; [1]MRG, IESL, FORTH, Crete, Greece, [2]Department of Chemical Engineering, University of Patras and FORTH-ICE/HT, Greece

TuLN-2 SiC Power Devices: Product Improvement using Diffusion Soldering: *M. Holz[1], J. Hilsenbeck[2], R. Otremba[1], A. Heinrich[3], and R. Rupp[1]*; [1]Infineon Technologies AG, Neubiberg, Germany, [2]Infineon Technologies Austria AG, Villach, Austria, [3]Infineon Technologies AG, Regensburg, Germany

TuLN-3 Electro-Thermal SPICE Model for high-voltage SiC VJFETs: *R.Elpelt[1], P.Friedrichs[1], J.Hippeli[1], R.Schörner[1], M.Treu[3], P.Türkes[2]*; [1]SiCED Electronics Development GmbH & Co. KG, Erlangen, Germany, [2]Infineon Technologies AG, Neubiberg, Germany, [3]Infineon Austria AG, Villach, Austria

TuLN-4 Effect of Bipolar Gate-to-Drain Current on the Electrical Properties of Vertical Junction Field Effect Transistors: *V. Veliadis[1], H. Hearne[1],J. Caldwell[2], E. J. Stewart[1], M. Snook[1], T. McNutt[1], P. Potyraj[1] and C. Scozzie[3]*; [1]Northrop Grumman Electronic Systems, Linthicum, USA, [2]U.S. Naval Research Laboratory, Washington, USA, [3]U.S. Army Research Laboratory, Adelphi, USA

TuLN-5 High-Temperature Reliability Assessment of 4H-SiC Vertical-Channel JFET Including Forward Bias Stress: *L. Cheng[1], M. S. Mazzola[1], V. Bondarenko[2], and D. Sheridan[2]*; [1]Center for Advanced Vehicular Systems, Mississippi State University, Starkville, USA, [2]SemiSouth Laboratories Inc., 201 Research Blvd., Starkville, USA

TuLN-6 High Temperature Characteristics of 4H-SiC RESURF-type JFET: *K. Fujikawa, K. Sawada, H. Tokuda, H. Tamaso, S. Harada, J. Shinkai, T. Tsuno and Y. Namikawa*; Sumitomo Electric Industries, Osaka, Japan

TuLN-8 Effect of Source and Drain contacts Schottky Barrier on 3C- SiC Nanowire FETs I-V characteristics: *K. Rogdakis[1,2], S. Y. Lee[3], D. J. Kim[3], S. K. Lee[3], E. Bano[1] and K. Zekentes[2]*; [1]IMEP-LAHC ,Grenoble, France, [2]IESL -FORTH, Greece, [3]Department of Semiconductor Science and Technology, Chonbuk National University, Korea

TuLN-9 Single Layer Graphene Growth on 6H-SiC(0001): *C. Virojanadara[1], M. Syväjarvi[1], R. Yakimova[1], L. I. Johansson[1], A. A. Zakharov[2], and T. Balasubramanian[2]*; [1]Department of Physics, Chemistry and Biology, Linköping University, Sweden, [2]Maxlab, Lund University, Sweden

TuLN-10 An Effective Method of Characterization of SiC Substrates: *M. Mynbaeva, A. Lebedev*; Ioffe Physico-Technical Institute, St.-Petersburg, Russia

Tu-3 Bulk and Epi Growth — 15:45 - 17:35

Chaired by Danilo Crippa and Hidekazu Tsuchida

15:45 <INVITED>
Tu3-1 Basal Plane Dislocation Mitigation in 8 Degree Off-Cut 4H-SiC Through in Situ Growth Interrupts During Chemical Vapor Deposition: *B. VanMil*; Electronics Science and Technology Division, U.S. Naval Research Laboratory, USA

16:15
Tu3-2 Defect Control in SiC Manufacturing: *E. Berkman, R. T. Leonard, M. J. Paisley, Y. Khlebnikov, M. J. O'Loughlin, A. A. Burk, A. R. Powell, D. P. Malta, E. Deyneka, M. F. Brady, I. Khlebnikov, V. F. Tsvetkov, H.McD. Hobgood, J. Sumakeris, C. Basceri, V. Balakrishna, C. H. Carter, Jr. and, C. Balkas*; Cree, Inc., USA

16:35
Tu3-3 On-axis Homoepitaxy on Full 2" Wafer for High Power Applications: *J. Hassan, J. P. Bergman, A. Henry, and E. Janzén*; Department of Physics, Chemistry and Biology, Linköping University, Sweden

16:55
Tu3-4 Chloride-based SiC epitaxial growth: *H. Pedersen[1], S. Leone[1,2], A. Henry[1], F. C. Beyer[1], A. Lundskog[1], and E. Janzén[1]*; Department of Physics, Chemistry and Biology, Linköping University, Sweden

17:15
Tu3-5 Atomistic and Continuum Simulations of the Homo-epitaxial Growth of SiC: *M. Camarda, A. La Magna, and F. La Via*; CNR-IMM, Catania, Italy

Coffee Break 17:35 – 17:50

Tu-4 Industrial Session 17:50 – 19:00

Chaired by José Millán

Industry News from TranSiC, TanKeBlue Semiconductor, Dow Corning, Yole, Cree Inc and SiCED.

Wednesday, September 10th

We-1 Reliability 08:50-10:40

Chaired by Marie Laure Locatelli and Tsunenobu Kimoto

8:50 <INVITED>
We1-1 Comparative Analysis of SiC Power Device Structures: *N. Wright*; University of Newcastle, UK

9:20
We1-2 Electrical Characterization of MOS Structures with Deposited Oxides Annealed in N2O or NO: M *Grieb[1], M. Noborio[2], D. Peters[3], A. J. Bauer[1], P. Friedrichs[3], T. Kimoto[2] and H. Ryssel[1]*; [1]Fraunhofer Institute of Integrated Systems and Device Technology, Germany, [2]Department of Electronic Science and Engineering, Kyoto University, Japan, [3]SiCED Electronics Development GmbH & Co., Germany

9:40
We1-3 300ºC SiC Blocking Diodes for Solar Array Strings: *E. Maset[1], E.Sanchis-Kilders[1], P. Brosselard[2], X. Jordà[2], M. Vellvehi[2], P. Godignon[2]*; [1]LEII Universidad de Valencia, spain, [2]Centro Nacional de Microelectrónica (CNM-CSIC), Spain

10:00
We1-4 Impact of Carbon Cap Annealing on Gate Oxide Reliability on 4H-SiC (000-1) C-face: *S. Harada[1], M. Kato[1], S. Ito[1], K. Suzuki[1], T. Ohyanagi[2], J. Senzaki[1], K. Fukuda[1], H.Okumura[1], and K. Arai[1]*;

[1]National Institute of Advanced Industrial Science and Technology, AIST, Japan, [2]R&D Association for Future Electron Devices, AIST, Japan

10:20
We1-5 Channel Hot-Carrier Effect of 4H-SiC MOSFET: *L. Yu[1,2], K. P. Cheung[2], J. Suehle[2], J. Campbell[2], K. Sheng[1], A. Lelis[3], S-H. Ryu[4]*; [1]Electrical & Computer Engineering, Rutgers University, USA, [2]National Institute of Standards & Technology, USA, [3]Army Research Laboratory, USA, [4]Cree, Inc, USA

Coffee Break 10:40 – 11:10

We-2 Surface and Interface 11:10 – 12:30

Chaired by Kevin Matocha and Sima Dimitrijev

11:10
We2-1 Hydrogen Adsorption and Etching on a Si-rich SiC Surface: *P. Deák, B. Aradi, J. M. Knaup, and T. Frauenheim*; Bremen Centre for Computational Materials Science, University of Bremen, Germany

11:30
We2-2 Atomistic Scale Modeling and Analysis of Sodium Enhanced Oxidation of Silicon Carbide: *A. Chatterjee[1], and K. Matocha[2]*; [1]GE Global Research Center, Bangalore, India, [2]GE Global Research Center, Niskayuna, NY, USA

11:50
We2-3 Interface States in 4H- and 6H-SiC MOS Capacitors; a Comparative Study Between Conductance Spectroscopy and Thermal Dielectric Relaxation Current Technique: *L. S. Løvlie[1], I. Pintilie[2,1], S. Kumar C. P.[1], U. Grossner[3,1], B.Svensson[1], S. Beljakowa[4], S. A. Reshanov[4], M. Krieger[4], G. Pensl[4]*; [1]Department of Physics / Centre for Materials Science and Nanotechnology, University of Oslo, Norway, [2]National Institute of Materials Physics, Romania, [3]Paul Scherrer Institute, Switzerland, [4]Lehrstuhl für Angewandte Physik, Universität Erlangen-Nürnberg, Germany

12:10
We2-4 Characterization of the SiO2/SiC Interface with Impedance Spectroscopy: *P. A. Sobas[1], U. Grossner[1,2], and B. G. Svensson[1]*; [1]Physics Department/Centre for Materials Science and Nanotechnology, University of Oslo, Norway, [2]Paul Scherrer Institut, Switzerland

Lunch 12:30 – 13:45

We-P Poster III 13:45 – 15:45

Mo-IP-1 <INVITED> **Fast Epitaxial Growth of 4H-SiC and Analysis of Defect Transfer:** *H. Tsuchida*; Central Research Institute of Electric Power Industry (CRIEPI), Japan

Mo-IP-2 <INVITED> **Spatial Profiling of Planar Defects in 4H-SiC Epilayers Using Micro-photoluminescence Mapping:** *G. Feng*; Department of Electronic Science and Engineering, Kyoto University, Japan

WeP-2 P-type 3C-SiC Grown by Sublimation Epitaxy on 6H-SiC Substrates: *S. P. Lebedev[1] , A. A. Lebedev[1], P. L. Abramov[1], E. V. Bogdanova[1], D. K. Nel'son[1], G. A. Oganesyan[1], A. S. Tregubova[1], R. Yakimova[2]*; [1]Ioffe Physicotechnical Institute, St.Petersburg, Russia, [2]Department of Physics, Chemistry and Biology, Linkoping University, Sweden

WeP-3 A Comparative Study of the Morphology of 3C-SiC Grown at Different C/Si Ratio: *G.Attolni[1], B.E.Watts[1], M.Bosi[1], F.Rossi[1], and F.Riesz[2]*; [1]IMEM-CNR Institute, Parma, Italy, [2]Research Institute for Technical Physics and Materials Science, Budapest, Hungary

WeP-4 Synthesis Crystalline Films of Silicone Carbide on Silicone from Vapors of Chlorine-containing Organosilicone Monomers: *B. M. Sinelnikov[1], V. A Tarala[2], I. S. Mitchenko[1]*; [1]North Caucasus State Technical University, Stavropol, Russia, [2]South scientific centre Russian Academy of Sciences, Rostov-na-Donu, Russia

WeP-5 Growth of Single Crystal 3C-SiC(111) on a Poly-Si Seed Layer: *C. Locke, C. Frewin, J. Wang, and S. E. Saddow*; Department of Electrical Engineering, University of South Florida, USA

WeP-6 Low Temperature Growth of 3C-SiC Film on Si (111) by Plasma Assisted CVD: *H. Shimizu, and A. Kato*; Department of Technology Education, Aichi University of Education, Japan

WeP-7 Advances in Liquid Phase Conversion of (100) and (111) Oriented Si Wafers into Self Standing 3C-SiC: *M. Zielinski[1], M. Portail[2], T. Chassagne[1], S. Juillaguet[3], H. Peyre[3], A. Leycuras[2], and J. Camassel[3]*; [1]NOVASiC, France, [2]CNRS-CRHEA, Valbonne, France, [3]Groupe d'Etude des Semiconducteurs, Université Montpellier II, France

WeP-8 Two-dimensional Nucleation of Cubic and 6H Silicon Carbide: *R. Vasiliauskas[1], M. Syväjärvi[2], M. Beshkova[3] and R. Yakimova[4]*; Department of Physics, Chemistry and Biology, Linkoping University, Sweden

WeP-9 P- and n-type Doping in SiC Sublimation Epitaxy using Highly Doped Substrates: *P. Hens[1], M. Syväjärvi[2], and R. Yakimova[2]*; [1]Materials for Electrical Engineering, University Erlangen-Nürnberg, Germany, [2]Material Science, IFM, University of Linköping, Sweden

WeP-10 Catalyst Assisted Growth of 3C-SiC Nanowires by APCVD Technique: *S. K. Panda, J. Sengupta, and C. Jacob*; Materials Science Centre, Indian Institute of Technology, Kharagpur, India

WeP-11 Properties of 3C-SiC Grown by Sublimation Epitaxy: *M. Beshkova, M. Syväjärvi, R. Vasiliauskas, J. Birch, and R. Yakimova*; Department of Physics, Chemistry and Biology, Linkoping University, Sweden

WeP-12 Growth Modes Observed during the Liquid Phase Conversion of Si into 3C-SiC - Influence of the Growth Conditions: *M. Zielinski[1], M. Portail[2], T. Chassagne[1], S. Juillaguet[3], H. Peyre[3], A. Leycuras[2], and J. Camassel[3]*; [1]NOVASiC, France, [2]CNRS-CRHEA, Valbonne, France, [3]Groupe d'Etude des Semiconducteurs, Université Montpellier II, France

WeP-13 Wafer Bending Mechanisms During the Growth of SiC Films on Si: *B. E. Watts, G. Attolini, M. Bosi, C. Frigeri, and C. Ferrari*; Istituto IMEM/CNR, FONTANINI-Parma, Italy

WeP-14 Searching for Ge Clusters inside 3C-SiC Layers Grown by Vapor-Liquid-Solid Mechanism on 6H-SiC substrates: *M. Marinova[1], I. Tsiaoussis[1], N. Frangis[1], E.K. Polychroniadis[1], O. Kim-Hak[2], J. Lorenzzi[2], and G. Ferro[2]*; [1]Department of Physics, Aristotle University of Thessaloniki, Greece, [2]Laboratoire des Multimateriaux et Interfaces, Université Claude Bernard Lyon I, France

WeP-15 Residual Stress Measurement on Hetero-Epitaxial 3C-SiC Films: *R. Anzalone[1,2], C. Locke[3], A. Severino[1,2], D. Rodilosso[4], C. Tringali[4], S. E. Saddow[3], F. La Via[1] and G. D'Arrigo[1]*; [1]IMM-CNR, Catania, Italy, [2]University of Catania, Phys. Dept., Italy, [3]Dept. of Electrical Engineering, USF, USA, [4]ST-Microelectronics, Catania, Italy

WeP-16 Effect of Post Deposition Annealing on the Characteristics of Sol-gel Derived HfO_2 on 4H-SiC: *C. C. Hoong and K. Y. Cheong*; School of Materials and Mineral Resources Engineering, Universiti Sains Malaysia, Malaysia

WeP-17 Influence of Substrate Doping type on SiO_2/4H-SiC Interface Characteristics: *R. Palmieri[1], H. Boudinov[1], C. Radtke[2], and M. R. Silva[1]*; [1]Instituto de Física, Porto Alegre, Brazil, [2]Instituto de Química, Porto Alegre, Brazil

WeP-18 Model Calculation of SiC Oxide Growth Rate based on the Silicon and Carbon Emission Model: *Y. Hijikata, H. Yaguchi, and S. Yoshida*; Division of Mathematics, Electronics and Informatics, Saitama University, Japan

WeP-19 Characterization of 4H-SiC-SiO_2 Interfaces by a Deep Ultraviolet Spectroscopic Ellipsometer: *H. Seki, T. Wakabayashi, Y. Hijikata, H. Yaguchi, and S. Yoshida*; Division of Mathematics, Electronics and Informatics, Saitama University, Japan

WeP-20 Observation of SiC Oxidation in Ultra-Thin Oxide Regime by In-Situ Spectroscopic Ellipsometry: *T.Takaku, Y.Hijikata, H.Yaguchi, and S.Yoshida*; Division of Mathematics, Electronics and Informatics, Saitama University, Japan

WeP-21 Analysis of the Electron Traps at the 4H-SiC/SiO_2 Interface of a Gate Oxide obtained by Wet Oxidation of a Nitrogen pre-implanted Layer: *I. Pintilie[1,3], F.Moscatelli[2], R. Nipoti[2], A. Poggi[2], S. Solmi[2] and B.G. Svensson[3]*; [1]National Institute of Materials Physics, Bucharest, Romania, [2]CNR-IMM Bologna, Italy, [3]Oslo University, Physics Department/Center for Materials Science and Nanotechnology, Norway

WeP-22 4H-SiC Oxide Characterization With SIMS Using A 13C Tracer: *J. Fronheiser[1], K. Matocha[1], V. Tilak[1], and L. Feldman[2]*; [1]General Electric Global Research Center, Niskayuna, USA, [2]Institute for Advanced Materials Development and Nanotechnology, Rutgers University, USA

WeP-23 First Demonstration of SiC MISFETs with 4H-AlN Gate Dielectric Heteroepitaxially-grown on 4H-SiC (11-20): *M. Horita[1], M. Noborio[1], T. Kimoto[1,2], and J. Suda[1]*; [1]Department of Electronic Science and Engineering, Kyoto University, Japan, [2]Photonics and Electronics Science and Engineering Center, Kyoto University

WeP-24 Low frequency Noise in 4H-SiC MOSFETs: *P. Ivanov[1], M. Levinshtein[1], J. Palmour[2], M. Das[2], B. Hull[2], M. Shur[3], S. Rumyantsev[1,3]*; [1]Ioffe Physico-Technical Institute, Saint-Petersburg, Russia, [2]CREE Inc., USA, [3]Rensselaer Polytechnic Institute, USA

WeP-25 High Channel Mobility of (11-20) Face and its MOSFET Characteristics: *E. Okuno[1], T. Endo[1], T. Sakakibara[1], S. Onda[1], M. Ito[2], and T. Uda[2]*; [1]Research Laboratories, DENSO CORPORATION, Japan, [2]AdvanceSoft Corporation, Tokyo, Japan

WeP-26 Transient Currents Induced in 6H-SiC MOS Capacitors by Oxygen Ion Incidence: *N. Iwamoto[1,2], S. Onoda[2], T. Ohshima[2], K. Kojima[3], and K. Kawano[1]*; [1]University of Electro-Communications (UEC), Tokyo, Japan, [2]Japan Atomic Energy Agency, Gunma, Japan, [3]National Institute of Advanced Industrial Science and Technology, Ibaraki, Japan

WeP-27 Improvements In SiC MOS Processing As Revealed By Studies Of Fixed And Oxide Trap Charge: *D. Habersat[1], A. J. Lelis[1], S. Potbhare[2], and N. Goldsman[2]*; [1]U.S. Army Research Laboratory, Adelphi, USA, [2]University of Maryland, USA

WeP-28 Quasi-Charge-Sheet Model for Inversion Layer Mobility: *R. R. Rao[1], K. Matocha[2] and V. Tilak[2]*; [1]GE Global Research Center, Bangalore, India, [2]GE Global Research Center, NY, USA

WeP-29 Effect of High Temperature Oxidation of 4H-SiC on the Near-interface Traps measured by TDRC: *F. Allerstam, and E. Ö. Sveinbjörnsson*; Microwave Electronics Laboratory, Department of Microtechnology and Nanoscience, Chalmers University of Technology, Sweden

WeP-30 Large Single Crystal Diamond Plates produced by Microwave Plasma CVD: *Y. Mokuno, A. Chayahara, H. Yamada, and N. Tsubouchi*; Diamond Research Center, National Institute of Advanced Industrial Science and Technology, Osaka, Japan

WeP-31 Nanocrystalline Diamond(NCD) Deposited on 3C-SiC Substrates: *C. L. Frewin[1], H. Gomez[2], J. Sathyaharish[1], A. Kumar[2], M. Italia[3], C. Bongiorno[3] and S. E. Saddow[1]*; [1]Department of Electrical Engineering, University of South Florida, USA, [2]Department of Mechanical Engineering, University of South Florida, USA, [3]CNR-IMM Catania, Italy

WeP-32 Metal Contacts to Boron-doped Diamond: *M. Lodzinski[1], O.J. Guy[1], A.Castaing[1], S. Batcup[1], S. Wilks[1], and P. Igic[1] R. Balmer[2] and C. Wort[2]*; [1]School of Engineering, Swansea University, UK, [2]Element Six, Berkshire, UK

WeP-33 Thermal Stability of Mo and Ru Schottky for Diamond Devices: *K. Ikeda, H. Umezawa, K. Ramanujam, and S. Shikata*; Diamond Research Center, National Institute of Advanced Industrial Science and Technology, Japan

WeP-34 Recent Progress of Diamond Device Toward Power Application: *S. Shikata[1], K. Ikeda[1], R. Kumaresan[1], H. Umezawa[1], and N. Tatsumi[2]*; [1]Diamond Research Center, National Institute of Advanced Industrial Science and Technology, Japan, [2]Sumitomo Electric Industries Co. Ltd., Hyogo, Japan

WeP-35 Device Size Dependence of Diamond SDB: *H. Umezawa[1], R. Kumaresan[1], K. Ikeda[1], N. Tatsumi[2], and S. Shikata[1]*; [1]Diamond Research Center, National Institute of Advanced Industrial Science and Technology, Japan, [2]Sumitomo Electric Industries Co. Ltd., Hyogo, Japan

WeP-36 Turning of Basal Plane Dislocations During Epitaxial Growth on 4º off-axis 4H-SiC: *R. L. Myers-Ward, B. L. VanMil, R. E. Stahlbush, P. B. Klein, C. R. Eddy, Jr., and D.K. Gaskill*; U.S. Naval Research Laboratory, Washington, U.S.A.

WeP-37 GaN Epitaxial Growth on 6H-SiC (0001) Substrate with Al Buffer Layer: *J. K. Kim[1,2], H. H. Hwang[1], J. M. Choi[1], W. J. Lee[1], I. S. Kim[1], B. C. Shin[1], and H. Y. Lee[2]*; [1]Electronic Ceramics Center, Department of Nano Engineering, Dong-Eui University, Korea, [2]LumiGNtech Co. Ltd, Seoul, Korea

WeP-38 Influence of the N/Al Ratio in the Gas Phase on the Growth of AlN by High Temperature Chemical Vapor Deposition (HTCVD): *A. Claudel[1,3], E. Blanquet[1], D. Chaussende[2], D. Pique[3], M. Pons[1]*; [1]Science et Ingénierie des Matériaux et Procédés, Grenoble, France, [2]Laboratoire des Matériaux et du Génie Physique, Grenoble, France, [3]ACERDE, Crolles, France

WeP-39 Structural Characterization of GaN Epitaxial Layers Grown on 4H-SiC Substrates with Different Off-cut: *P. Caban[1,2], K. Kosciewicz[1,3], W. Strupinski[1], J. Szmidt[2], K. Pagowska[4], R. Ratajczak[4], M. Wojcik[1], J. Gaca[1], A. Turos[1,4]*; [1]Institute of Electronic Materials Technology, Warsaw, Poland, [2]Institute of Microelectronics and Optoelectronics, Warsaw University of Technology, Poland, [3]Faculty of Materials Science and Engineering, Warsaw University of Technology, Warsaw, Poland, [4]Soltan Institute of Nuclear Studies, Poland

WeP-40 Seeded Growth of AlN on (0001)-Plane 6H-SiC Substrates: *O. Filip[1], B. M. Epelbaum[1], M. Bickermann[1], P. Heimann[1], S. Nagata[2], and A. Winnacker[1]*; [1]Department of Materials Science [6], University of Erlangen-Nürnberg, Germany, [2]Functional Materials Development Center, Research Laboratories, JFE Mineral Company, Ltd., Japan

WeP-41 Composition and Interface Chemistry Dependence in Ohmic Contacts to HEMT Structures on the Ti/Al Ratio and Annealing Conditions: *L. Kolaklieva[1], R. Kakanakov[1], P. Stefanov[2], V. Cimalla[3], O. Ambacher[3], K. Tonisch[4], M. Niebelschütz[4], F. Niebelschütz[4]*; [1]Institute of Applied Physics, Bulgaria, [2]Institute of General and Inorganic Chemistry, Bulgaria, [3]Fraunhofer Institut für Angewandte Festkörperphysik, Freiburg, Germany, [4]Center for Micro- and Nanotechnologies, Technical University Ilmenau, Germany

WeP-42 Influence of Thermal Annealing Processes in the Device Fabrication on AlGaN/GaN Heterostructures: *F. Roccaforte[1], F. Iucolano[1,2], F. Giannazzo[1], G. Moschetti[1,3], V. Puglisi[4], G. Abbondanza[5], V. Raineri[1]*; [1]CNR-IMM Catania, Italy, [2]Dipartimento di Fisica e Astronomia, Università di Catania, Italy, [3]DIEES, Università di Catania, Italy, [4]ST Microelectronics, Catania, Italy, [5]Epitaxial Technolgy Center, Catania, Italy

WeP-43 Electrical Properties of Ni/GaN Schottky Contacts formed on High-Temperature Annealed GaN Surface: *F. Iucolano[1,2], F. Roccaforte[1], F. Giannazzo[1], S. Di Franco[1], V. Puglisi[3], V. Raineri[1]*; [1]CNR-IMM Catania, Italy, [2]Dipartimento di Fisica e Astronomia, Università di Catania, Italy, [3]ST Microelectronics, Catania, Italy

WeP-44 Phase formation in Ti-Al-N MAX-Phase Contacts to GaN: *M. A. Borysiewicz[1], E. Kaminska[1], A.*

Piotrowska[1], *I. Pasternak*[1], *R. Jakieła*[2], *E. Dynowska*[2]; [1]Institute of Electron Technology, Warsaw, Poland, [2]Institute of Physics, Warsaw, Poland

WeP-45 Process Parameters Influence on SCR value for TiAl Ohmic Contacts on GaN Grown on Sapphire: *O. Menard*[1,2], *F. Cayrel*[1], *E. Collard*[2], *and D. Alquier*[1]; [1]LMP, TOURS France, [2]STMicroelectronics, TOURS France

WeP-46 High Voltage AlGaN/GaN HEMTs Employing the Tapered Field Plate: *Y. H. Choi, J. Lim, Ky. H. Cho, Y. S. Kim, and M. K. Han*; School of Electrical Eng. & Computer Science, Seoul National University, Korea

WeP-47 Improved Current Gain in GaN/SiC Heterojunction Bipolar Transistors by Insertion of Ultra-thin AlN Layer at Emitter-junction: *H. Miyake*[1], *T. Kimoto*[1,2] *and J. Suda*[1]; [1]Department of Electronic Science and Engineering, Kyoto University, Japan, [2]Photonics and Electronics Science and Engineering Center, Kyoto University, Japan

WeP-48 Two broadband GaN MMIC Power Amplifiers for EW systems: *M. A. Gonzalez-Garrido*[1], *J. Grajal*[1], *P. Cubilla*[2], *C. Lanzieri*[3] *and A. Cetronio*[3]; [1]Departamento de Se:ales, Sistemas y Radiocomunicaciones, ETSIT, Universidad Politecnica de Madrid, Spain, [2]Indra Sistemas S.A, Spain, [3]Selex Sistemi Integrati, Italy

WeP-49 Microhardness of 6H- and 4H-SiC Substrates: *C.R. Eddy, Jr.*[1], *P. Wu*[2], *I. Zwieback*[2], *B.L. VanMil*[1], *R.L. Myers-Ward*[1], *A. Souzis*[2], *and D.K. Gaskill*[1]; [1]U.S. Naval Research Laboratory, Washington, USA, [2]II-VI, Inc., NJ, USA

WeP-50 Electrical and Mechanical Properties of Post-Annealed SiCxNy Films: *M. A. Fraga*[1], *M. Massi*[1], *I. C. Oliveira*[1], *N. C. Cruz*[2], *S. G. dos Santos Filho*[3]; [1]Plasmas and Processes Laboratory, LPP/ITA, Brazil, [2]Plasmas Laboratory, UNESP, Brazil, [3]Laboratory of Integrated Systems, LSI/USP, Brazil

WeP-51 Single Crystal and Polycrystalline 3C-SiC for MEMS Applications: *A. Henry*[1], *E. Janzén*[1], *E. Mastropaolo*[2], *and R. Cheung*[2]; [1]Department of Physics, Chemistry and Biology, Linköping University SWEDEN, [2]School of Engineering and Electronics, Scottish Microelectronics Center, The University of Edinburgh, UK

WeP-52 SiC Freestanding Micromechanical Structures on Silicon-On-Insulator Substrates: *M. Placidi*[1], *M. Zielinski*[2], *G. Abadal*[3], *J. Montserrat*[1], *P. Godignon*[1]; [1]CNM-CSIC, Spain, [2]CRHEA-CNRS, Valbonne, France, [3]ETSE, Spain

WeP-53 Performance Modification of SiC MEMS: *F. Niebelschütz*[1], *K. Tonisch*[1], *K. Brückner*[2], *V. Cimalla*[3], *R. Stephan*[2], *M. A. Hein*[2], *J. Pezoldt*[1]; [1]FG Nanotechnologie, TU Ilmenau, Germany, [2]FG Hochfrequenz- und Mikrowellentechnik, TU Ilmenau, Germany, [3]Fraunhofer Institut für Angewandte Festkörperphysik, Freiburg, Germany

WeP-54 Characterization of Phosphorus Implanted n+/p Junctions Integrated as Source/Drain Regions in a 4H-SiC n-MOSFET: *F. Moscatelli, R. Nipoti, A. Poggi, S. Solmi, S. Cristiani, and M. Sanmartin*; CNR-IMM Bologna,Italy

WeP-55 High Channel Mobility in P-Channel MOSFETs Fabricated on 4H-SiC (0001) and Non-Basal Faces: *M. Noborio*[1], *J. Suda*[1], *and T. Kimoto*[1,2]; [1]Department of Electronic Science and Engineering, Kyoto University, Japan, [2]Photonics and Electronics Science and Engineering Center, Kyoto University, Japan

WeP-56 Effect of Oxidant in MOCVD-growth of Al_2O_3 Gate Insurator on 4H-SiC MOSFET Properties: *H.Moriya*[1], *S. Hino*[2], *N. Miura*[2], *T. Oomori*[2], *and E. Tokumitsu*; [1]Precision and Intelligence Laboratory, Tokyo Institute of Technology, Japan, [2]Advanced Technology R&D Center, Mitsubishi Electric Corporation, Japan

WeP-57 Comparison of 4H-SiC MOSFETs on (0001), (000-1) and (11-20) Oriented Substrates: *H. Naik*[1], *K. Tang*[1], *T. Marron*[1], *T.P. Chow*[1], *and J. Fronheiser*[2]; [1]Center for Integrated Electronics, Rensselaer Polytechnic Institute, NY, U.S.A., [2]Semiconductor Technology Lab, GE Global Research Center, NY, USA

WeP-58 Reliablility of 4H-SiC (0001) MOS Gate Oxide using N2O Nitridation: *T. Suzuki[1,2], J. Senzaki[3], T. Hatakeyama[1,2], K. Fukuda[3], and T. Shinohe[1,2]*; [1]Corporate R&D Center, Toshiba Corp., Japan, [2]R&D Association for Future Electron Devices, AIST Tsukuba Central, Japan, [3]Energy Semiconductor Electronics Research Laboratory, National Institute of Advanced Industrial Science and Technology, Japan

WeP-59 900 V 4H-SiC Trench MOSFETs with Low On Resistance: *Y. Nakano, T. Nakamura, and A. Kamisawa*; ROHM CO., Kyoto, Japan

WeP-60 High Channel Mobility of 4H-SiC MOSFETs Fabricated by Overoxidation of the N-/Al-coimplanted Surface Layer: *S. A. Reshanov[1], S. Beljakowa[1], T. Frank[1], B. Zippelius[1], M. Krieger[1], G. Pensl[1], M. Noborio[2], T. Kimoto[2]*; [1]Lehrstuhl für Angewandte Physik, Universität Erlangen-Nürnberg, Germany, [2]Department of Electronic Science & Engineering, Kyoto University, Japan

WeP-61 1.5 kV Lateral Double RESURF MOSFETs on 4H-SiC (000-1)C Face: *M. Noborio[1], J. Suda[1], and T. Kimoto[1,2]*; [1]Department of Electronic Science and Engineering, Kyoto University, Japan, [2]Photonics and Electronics Science and Engineering Center, Kyoto University, Japan

WeP-62 Investigation of ON and OFF State Characteristics of 4H-SiC DMOSFETs: *S. Potbhare[1], N. Goldsman[1], A. Akturk[1], A. Lelis[2], R. Green[2]*; [1]University of Maryland, USA, [2]U.S. Army Research Laboratory, Adelphi, USA

WeP-63 Interface Trap Density and Mobility Characterization of Silicon Carbide MOSFET Inversion Layers: *V. Tilak, K. Matocha, and G. Dunne*; Semiconductor Technology Laboratory, GE Global Research, NY, USA

WeP-64 100 Amp, 1000 Volt Silicon Carbide MOSFET Power Modules: *P. Losee[1], K. Matocha[1], S. Arthur[1], R. Beaupre[1], R. Rao[1], E. Delgado[1], J. Nasadoski[1], J. Garrett[1], Z. Stum[1], L. Stevanovic[1], R. Conte[2], and K. Monaghan[2]*; [1]General Electric Global Research Center, NY, USA, [2]Sensitron Semiconductor, NY, USA

WeP-65 Substantial Reduction of Power Loss in a 14kVA Inverter Using Paralleled SiC-MOSFETs and SiC-SBDs: *S. Nakata, S. Kinouchi, T.Sawada, T. Oi, and T. Oomori*; Advanced Technology R&D Center, Mitsubishi Electric Corporation, Hyogo, Japan

WeP-66 Applications of SiC-Transistors in Photovoltaic Inverters: *B. Burger, D. Kranzer, O. Stalter*; Fraunhofer – Institute for Solar Energy Systems, Freiburg, Germany

WeP-67 High power density SiC 450A current limiting device: *D. Tournier[1], P. Bevilacqua[1], H. Morel[1], D. Planson[1], P. Brosselard[2], P. Godignon[2], A. Lhorte[3], S. Carcouet[4], D. Leonard[4]*; [1]Ampère INSA Lyon, Villeurbanne, France, [2]Centro Nacional de Microelectrónica, Barcelona, Spain, [3]ST-Microelectronics, Grenoble, France

WeLN-1 Impact of a Treatment Combining Nitrogen Plasma Exposure and Forming Gas Annealing on Defect Passivation of SiO2/SiC Interfaces: *H. Watanabe[1], Y. Watanabe[1], M. Harada[1], Y. Kagei[1], T. Kirino[1], T. Hosoi[1], T. Shimura[1], S. Mitani[2], Y. Nakano[2], T. Nakamura[2]*; [1]Graduate School of Eng., Osaka University, Japan, [2]ROHM CO., Kyoto, Japan

WeLN-2 Effects of the Surface Condition of the Substrates on the Electrical Characteristics of 4H-SiC MOSFETs: *T. Ohshima[1], S. Onoda[1], T. Kamada[2], K. Hotta[2], K. Kawata[2] and O.Eryu[3]*; [1]Japan Atomic Energy Agency, Gunma, Japan, [2]Fujimi Incorporated, Kakamigahara, Japan, [3]Nagoya Institute of Technology, Gokiso, Japan

WeLN-3 Imaging Study of Grown-In Stacking Faults in 4H-SiC Epitaxial Layer: *R. Hattori[1], K. Hamano[1], R. Shimizu[2], I. Chiba[2], T. Omori[1]*; [1]Advanced Technology R&D Center, Mitsubishi Electric Corp., Japan, [2]Photon Design Corp., Tokyo, Japan

WeLN-4 Effects of Rapid Thermal Annealing on Al2O3/SiN/thermal-nitrided SiO2 Stacking Gate Dielectrics on 4H-SiC: *J. H. Moon[1], K. Y. Cheong[2], J. H. Yim[1], H. S. Seo[1], D. H. Lee[1], W. Bahng[3], N. K. Kim[3] and H. J. Kim[1]*; [1]School of Materials Science and Engineering, Seoul, Korea, [2]School of Materials and

Mineral Resources Engineering, Penang, Malaysia, [3]Integrated Power Supply Research Group, Changwon, Korea

WeLN-5 Application of SiC-BGSITs for DC-DC Converters: *Y. Tanaka[1], K. Yano[2], A. Takatsuka[1,2], K. Arai[3] and T. Yatsuo[1]*; [1]Energy Semiconductor Electronics Research Laboratory AIST, Ibaraki, Japan, [2]Interdisciplinary Graduate School of Medical and Engineering, Yamanashi University, Japan, [3]Research and Innovation Promotion Office AIST, Ibaraki, Japan

WeLN-6 3C-SiC on Si Films for MEMS Applications: Mechanical Properties: *C. Locke[1], G. Kravchenko[2], P. Waters[2], J. Deva Reddy[2], A. A. Volinsky[2], C. L. Frewin[1], and S. E. Saddow[1]*; [1]Department of Electrical Engineering, University of South Florida, USA, [2]Department of Mechanical Engineering, University of South Florida, USA

WeLN-7 High-breakdown-voltage GaN Vertical Schottky Barrier Diodes with Field Plate Structures: *T. Horii, T. Miyazaki, Y. Saito, S. Hashimoto, T. Tanabe and M. Kiyama*; Sumitomo Electric Industries, Osaka, Japan

WeLN-8 PL Growth of Cubic GaN Surfaces: A First Principles Study: *S. Dijkstra, E. Rauls, W. G. Schmidt*; Lehrstuhl für Theoretische Physik, Universität Paderborn, Paderborn, Germany

WeLN-9 Ferromagnetic Properties of Nonmagnetic Elements-doped SiC and AlN: *X.L. Chen, B. Song, H. Li, W.J. Wang*; Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Beijing, China

WeLN-10 Measurement of Spontaneous Polarization Charge in 3C/6H SiC Heterostructure with Two Dimensional Electron Gas by Capacitance-Voltage Method: *J. Lu, Chris I. Thomas, M.V.S. Chandrashekhar, M. G. Spencer;* School of Electrical and Computer Engineering, Cornell University, USA

WeLN-11 Comparative Study of 3C-GaN Grown on Semiinsulating 3C-SiC/Si(100) Substrates : *E. Tschumak[1], K. Tonisch[2], J. Pezoldt2, D. As[2]*; [1] Department Physik, Universität Paderborn, Germany, [2]FG Nanotechnologie, TU Ilmenau, Germany

WeLN-12 Heat-Resistant Barrier Contacts Made on the Basis of TiBx and ZrBx to SiC and GaN: *A.A. Lebedev[1], A.E. Belyaev[2], N.S. Boltovets[3], V.N. Ivanov[3],R.V. Konakova[2], Ya.Ya. Kudryk[2], V.V. Milenin[2], V.N. Sheremet[2]*; [1]Ioffe Physico-Technical Institute, Sankt-Peterburg, Russia, [2]V. Lashkaryov Institute of Semiconductor Physics, NAS of Ukraine, Kyiv, Ukraine, [3]State Enterprise Research Institute “Orion”, Kyiv, Ukraine

WeLN-13 Growth of III-N Layers and Structures by HVPE on SiC: *V.Soukhoveev, A. Syrkin, V. Ivantsov, O. Kovalenkov, A. Usikov*; Technologies and Devices International an Oxford Instruments Company, USA

We-3 Power MOSFETs 15:45 – 17:35

Chaired by Paul Chow and Dethard Peters

15:45 <INVITED>
We3-1 Development of High-Performance SiC MOSFETs: *T. Nakamura*; New Material Devices R&D Center, ROHM CO, Japan

16:15
We3-2 Implications of Threshold-Voltage Instability on SiC DMOSFET Operation: *A. J. Lelis[1], D. Habersat[1], R. Green[1], and N. Goldsman[2]*; [1]U.S. Army Research Laboratory, MD, USA, [2]University of Maryland, MD, USA

16:35
We3-3 Reliability of Large Area Gate Oxide on the C-face of 4H-SiC: *T. Hatakeyama[1], T. Suzuki[1], K. Fukuda[2], T. Shinohe[1], and K. Arai[2]*; [1]Advanced Inverter Laboratory R&D Association for Future Electron Devices, c/o Energy Semiconductor Electronics Research Laboratory (ESERL), AIST, Japan, [2]ESERL,

AIST, Japan

16:55
We3-4 Improved On-Current of 4H-SiC MOSFET with a Three-Dimensional Gate Structure: *Y. Nanen[1], H. Yoshioka[1], M. Noborio[1], J. Suda[1], and T. Kimoto[1, 2]*; [1]Department of Electronic Science and Engineering, Kyoto University, Japan, [2]Photonics and Electronics Science and Engineering Center (PESEC), Kyoto University, Japan

17:15
We3-5 Performance of 60A, 1200V 4H-SiC DMOSFETs: *B. A. Hull[1], S-H. Ryu[1], C. Jonas[1], M. Das[1], M. O'Loughlin[1], R. Callanan[1], J. Richmond[1], A. Agarwal[1], J. Palmour[1] and S. Scozzie[2]*; [1]Cree, Inc., NC, USA, [2]Army Research Laboratory, MD, USA

Gala Dinner 20:00

Thursday, September 11th

Th-1 Device Processing 08:50-10:40

Chaired by Roberta Nipoti and Alexander Lebedev

8:50 <INVITED>
Th1-1 Polycrystalline and Monocrystalline SiC Devices in Space Applications: *S. Berberich*; EADS Astrium GmbH, Germany-Spain

9:20
Th1-2 Heat-Resistive Ni2Si-Based Contacts on SiC Connected to Si-Doped Al Interconnect via Ta/TaN Barrier: *S. Tanimoto[1,2], and H. Oohashi[3]*; [1]YS[3]-NRC, Nissan Motor Co., Ltd., Japan, [2]Advanced Inverter Laboratory, Japan, [3]ESERL, AIST, Japan

9:40
Th1-3 Effects of N Implantation on the Performance of 4H-SiC MOSFET: *A. Poggi, F. Moscatelli, S. Solmi, R. Nipoti, F. Tamarri, and G. Pizzochero*; CNR-IMM sezione di Bolonia, Italy

10:00
Th1-4 AlON/SiO_2 Stacked Gate Dielectrics for 4H-SiC MIS Devices: *T. Hosoi[1], M. Harada[1], Y. Kagei[1], Y. Watanabe[1], T. Shimura[1], S. Mitani[2], Y. Nakano[2], T. Nakamura[2], and H. Watanabe[1]*; [1]Graduate School of Eng., Osaka University, Japan, [2]New Material Devices R&D Center, Kyoto, Japan

10:20
Th1-5 Positive Temperature Coefficient of Avalanche Breakdown Observed in a-Plane 6H-SiC Photodiodes: *S. Soloviev, A. Vert, J. Fronheiser, and P. Sandvik*; General Electric Global Research Center, Niskayuna, NY, USA

Coffee Break 10:40 – 11:10

Th-2 Unipolar and Bipolar Devices 11:10 – 12:30

Chaired by Dominique Planson and Adolf Schöner

11:10
Th2-1 A New High Current Gain 4H-SiC Bipolar Junction Transistor With Suppressed Surface Recombination Structure; SSR-BJT: *K. Nonaka[1], A. Horiuchi[1], Y. Negoro[1], K. Iwanaga[1], S. Yokoyama[1], H. Hashimoto[1], M. Sato[2], Y. Maeyama[2], M. Shimizu[2], and H. Iwakuro[2]*; [1]Honda R&D Co. Ltd., Japan, [2]Shindengen Electric Mfg. Co. Ltd., Japan

11:30
Th2-2 Assessment of High and Low Temperature Performance of SiC BJTs: *M. Nawaz[1], C. Zaring[1], J. Bource[3], M. Schupbach[3], H. -S. Lee[1] , and M. Östling[2]*; [1]TranSiC AB, Kista, Sweden, [2]Royal Institute of Technology (KTH), Kista, Sweden, [3]Arkansas Power Electronic International, Research Center, USA

11:50
Th2-3 VJFET based all-SiC Normally-Off Cascode Switch for High Temperature Power Handling Applications: *V. Veliadis[1], H. Hearne[1], T. McNutt[1], M. Snook[1], P. Potyraj[1], and C. Scozzie[2]*; [1]Northrop Grumman Electronic Systems, Linthicum, USA, [2]U.S. Army Research Laboratory, Adelphi, USA

12:10
Th2-4 Characterization and Modeling of SiC LTJFET for Analog Integrated Circuit Simulation and Design: *H. Maralani[1], M. S. Mazzola[1], I. Sankin[2], V. Bondarenko[2]*; [1]Department of Electrical and Computer Engineering and Center for Advanced Vehicular Systems, Mississippi State University, USA, [2]SemiSouth Laboratories, Inc., MS, USA

Lunch 12:30 – 13:45

Th-3 Applications and Future Perspectives 13:45 – 15:10

Chaired by Bengt Svensson and Roland Rupp

13:40 <INVITED>
Th3-1 Critical Issues for MOS Based Power Devices in 4H-SiC: *S-H. Ryu*; CREE Research Inc., North Carolina, USA

14:10
Th3-2 Comparison of SiC-JFET and Si-IGBT inverter losses: *I. Koch, and W.-R. Canders*; Technical University of Braunschweig, Institute for Electrical Machines, Traction and Drives, Germany

14:30
Th3-3 Ultra Low Noise Epitaxial 4H-SiC X-Ray Detectors: *G. Bertuccio[1], S. Caccia[1], F. Nava[2], G. Foti[3], D. Puglisi[3], C. Lanzieri[4], S. Lavanga[4], G. Abbondanza[5], D. Crippa[6]*; [1]Department of Electronics Engineering and Information Science and National Institute of Nuclear Physics INFN, Politecnico di Milano, Italy, [2]Physics Department, Modena and Reggio Emilia University and National Institute of Nuclear, Physics INFN, Italy, [3]Department of Physics and National Institute of Nuclear Physics INFN, Catania University, Italy, [4]SELEX Sistemi Integrati S.p.A., Rome, Italy, [5]E.T.C. Epitaxial Technology Center, Catania, Italy, [6]LPE S.p.A., Baranzate (MI), Italy

14:50
Th3-4 Bio-interfacing with SiC: *S. Schoell, I. D. Sharp, M. Hoe, M. S. Brandt, and M. Stutzmann*; Walter Schottky Institut, Technische Universität München, Germany

Closing **15:10 – 15:30**