Strasbourg (France)

E-MRS IUMRS ICEM 2006 Spring Meeting

Nice, France - May 29 – June 2, 2006

SYMPOSIUM U

Si-based Materials for Advanced Microelectronic Devices: Synthesis, Defects and Diffusion

Symposium Organizers:

Enrico Napolitani, MATIS – CNR-INFM, Padova, Italy

Andrej Kuznetsov, University of Oslo, Norway

Wolfgang Skorupa, Forschungszentrum Rossendorf, Dresden, Germany

Majeed Foad, Applied Materials, Sunnyvale CA, USA

Symposium Support

Applied Materials, USA

Papers to be published in Nuclear Instruments and Methods in Physics Research B: Beam Interactions with Materials and Atoms

E-MRS IUMRS ICEM 2006 Spring Meeting

SYMPOSIUM U

Tuesday, May 30, 2006 — Morning
Mardi, 30 mai 2006 — Matin

Session I: **NEW MATERIALS FOR CMOS DEVICES**
Session: chair: **F. Cristiano**

8:30 **OPENING**

U-I.1 8:40 Invited TRANSFORMATION OF CMOS SCALING: INCREASING ROLE FOR NEW MATERIALS - **G. Shahidi**
Ghavam G. Shahidi, IBM, T.J. Watson Research Center, Yorktown Heights, NY 10598, USA

U-I.2 9:10 Invited NEW MATERIALS AND METHODS FOR CMOS DEVICES - **Thomas Feudel**
Th.Feudel, M.Horstmann, L.Herrmann, M.Herden, D.Gehre, J.Bloomquist, G.Burbach, J.Hoentschel, P.Javorka, C.Schwan, A.Wei, T.Kammler, P.Press, M.Lenski, R.Stephan, K.Frohberg, D.Greenlaw AMD Saxony LLC & Co. KG, Wilschdorfer Landstrasse 101, D-01109 Dresden, Germany

U-I.3 9:40 HE IMPLANTATION INDUCED NANOVOIDS IN MBE SI-BASED MATERIALS - **Antonio Terrasi**
A. Terrasi(1), G. Pulvirenti(1), G. Bisognin(2), M. Berti(2), S. Mirabella(3), C. Bongiorno(4), F. Giannazzo(4), V.Raineri(4), 1)CNR-INFM MATIS Catania & Dipartimento di Fisica e Astronomia, Università di Catania 2)CNR-INFM MATIS Padova & Dipartimento di Fisica, Università di Padova 3)CNR-INFM MATIS Catania 4)CNR-IMM Catania

U-I.4 10:00 STRAIN RELAXATION MECHANISM IN ION-IMPLANTED STRAINED SILICON ON SIGE - **Michelle Phen**
M.S. Phen, V. Craciun, and K. S. Jones, University of Florida, Gainesville, Fl 32611

U-I.5 10:20 NANOCAVITIES INDUCED BY HE AND NE IMPLANTATION IN SILICON SUBSTRATE:A TEMPLATE FOR THE GROWTH OF LATTICE- RELAXED SI1-XGEX/SI - **Esidor Ntsoenzok**
E. Ntsoenzok (1), C. Hadj Belgacem (2), G. Regula (3), M. Raïssi (2), M. Lancin (3) M. Fnaiech (1) and J.- L. Lazzari (4) (1) Laboratoire d'Electronique Signaux et Images, LESI, Université d'Orléans, 21 rue Loigny La Bataille, 28000 Chartres, France. Centre d'Etudes et de Recherches par Irradiation, CERI-CNRS, 3A Rue de la Férollerie, 45071 Orléans, France. (2) Unité de Recherche de Physique des Solides, Département de Physique, Faculté des Sciences de Monastir, Avenue de l'Environnement, 5019 Monastir, Tunisia. (3) Laboratoire Thermodynamique, propriétés Electriques, Contraintes et Structure aux Echelles Nanométriques, TECSEN, UMR-CNRS 6122, Case 151, Université Paul Cézanne, Aix Marseille III, 13397 Marseille cedex 20, France. (4) Centre de Recherche en Matière Condensée et Nanosciences, CRMC-N, UPR-CNRS 7251, Laboratory associated with the Université de la Méditerranée and the Université Paul Cézanne, Campus de Luminy, Case 913, 13288 Marseille cedex 9, France.

10:40 **BREAK**

Session II: NEW METHODS FOR USJ FORMATION
Session: chair: T. Feudel

U-II.1 11:00 Invited ADVANCED USJ FORMATION USING FRTP - **Jeffrey Gelpey**
Jeffrey C. Gelpey1, Steven McCoy1, Wilfried Lerch2, Silke Paul2, David M. Camm1, Jason Chan1, Greg Stuart1 1Mattson Technology Canada, Inc. Vancouver, BC Canada 2 Mattson Thermal Products GmbH, Dornstadt, Germany

U-II.2 11:30 ULTRA SHALLOW JUNCTIONS FORMATION BY B AND C CO-IMPLANTATION IN PRE-AMORPHIZED SI - **Marco Di Marino**
M. Di Marino, E. Napolitani, G. Bisognin, D. De Salvador, A. Carnera MATIS-CNR-INFM and Dipartimento di Fisica, Università di Padova, Via Marzolo 8, 35131 Padova, ITALY S. Mirabella, G. Impellizzeri, F. Priolo MATIS-CNR-INFM and Dipartimento di Fisica e Astronomia, Università di Catania, Via S. Sofia 64, 95123 Catania, ITALY H. Graoui, M. A. Foad Applied Materials Inc., 974 E. Arques Avenue, Sunnyvale, CA 94086, USA

U-II.3 11:50 MECHANISM OF DE-ACTIVATION AND CLUSTERING OF B IN SI AT EXTREMELY HIGH CONCENTRATION - **Lucia Romano**
L. Romano, A.M. Piro, M.G. Grimaldi. E. Rimini CNR-INFM MATIS and Dipartimento di Fisica e Astronomia, Università di Catania, 64 Via S. Sofia, I-95123 Catania, ITALY V. Privitera CNR-IMM, 50 Stradale Primosole, 95121 Catania, Italy G. Fortunato CNR-IFN, 42 Via Cineto Romano, 00156 Rome, Italy B. G. Svensson Department of Physics, Physical Electronics, University of Oslo, P.O. Box 1048, Blindern, N-0316 Oslo, Norway

U-II.4 12:10 EXAFS INVESTIGATION OF ARSENIC SHALLOW IMPLANTS IN SILICON AFTER LASER SUB-MELT ANNEALING. - **Damiano Giubertoni**
D. Giubertoni, G. Pepponi, M. Bersani, S. Gennaro ITC-irst Centro per la Ricerca Scientifica e Tecnologica, Via Sommarie 18, 38050 Povo (TN) Italy F. D'Acapito, INFM – OGG, c/o ESRF, GILDA CRG, 6 Rue Jules Horowitz, F-38043 Grenoble, France R. Doherty and M. A. Foad Applied Materials, 974 E. Arques Ave., M/S 81280, Sunnyvale, CA 94086, USA

U-II.5 12:30 Invited USJ TECHNOLOGY FOR HIGH PERFORMANCE TRANSISTORS - **Kyoichi Suguro**
Kyoichi Suguro, Takayuki Ito, Hiroshi Itokawa, Takaharu Itani, Takeshi Shibata and Yoshimasa Kawase Process & Manufacturing Eng, Ctr., Toshiba Corporation, 8, Shinsugita-cho, Isogo-ku, Yokohama 235-8522, Japan

13:00 **LUNCH**

Tuesday, May 30, 2006 — Afternoon
Mardi, 30 mai 2006 — Après-midi

Session III: USJ FORMATION
Session: chair: J. Gelpey

U-III.1 14:20 Invited PHYSICAL INSIGHT INTO USJ FORMATION THROUGH ATOMISTIC MODELING - **Lourdes Pelaz**
L. Pelaz (1), M. Aboy (1), P. Lopez (1), L.A. Marques (1), I. Santos (1), R. Duffy (2) (1) University of Valladolid, Spain, (2) Philips Research, Leuven, Belgium

U-III.2 14:50 LOW TEMPERATURE B CLUSTERING FORMATION, GROWTH AND DISSOLUTION. - **Alberto Piro**
A.M. Piro, L. Romano, S. Mirabella , M.G. Grimaldi. CNR-INFM MATIS and Dipartimento di Fisica e Astronomia, Università di Catania, Via S. Sofia 64, I-95123 Catania, ITALY

U-III.3 15:10 STUDY OF B CLUSTERING THERMAL BEHAVIOUR BY MEANS OF IN SITU HIGH RESOLUTION X-RAY DIFFRACTION - **Gabriele Bisognin**
G. Bisognin1*, D. De Salvador1, E. Napolitani1, A. Carnera1, L. Romano2, A. M. Piro2, S. Mirabella2 and M. G. Grimaldi2 1CNR-INFM MATIS and Dipartimento di Fisica, Università di Padova, Via Marzolo 8, I-35131 Padova, ITALY 2 CNR-INFM MATIS and Dipartimento di Fisica e Astronomia, Università di Catania, Via S. Sofia 64, I-95123 Catania, ITALY * bisognin@padova.infm.it

U-III.4 15:30 RELIABLE AS CONCENTRATION PROFILES AT SI-SIO2 INTERFACES - **Trinity Biggerstaff**
L. Pei1, Trinity Biggerstaff1, C. Steen2, P. Pichler3, K. Ravichandran4, W. Windl4, and G. Duscher1,5 1. Department of Materials Science and Engineering, North Carolina State University, Raleigh, NC 2. Chair of Electron Devices, University Erlangen-Nuremberg, Germany 3. Fraunhofer Institute of Integrated Systems and Device Technology, Erlangen, Germany 4. Department of Materials Science and Engineering, Ohio State University, Columbus, OH 5. Condensed Matter Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN

U-III.5 15:50 EXPERIMENTAL DETERMINATION OF THE LOCAL GEOMETRY AROUND OF IN ATOMSAND IN-C COMPLEXES IN SI - **Francesco D'Acapito**
F. d'Acapito@, Y. Shimizu#, S. Scalese$, M. Italia$, P. Alippi$, S. Grasso$, V. Privitera$ @ INFM-OGG, c/o ESRF, GILDA CRG Grenoble # Institute of Applied Physics, University of Tsukuba 1-1-1 Tennodai, Tsukuba, Ibaraki 305-8573, Japan $ CNR-IMM, Stradale Primosole 50, I-95121 Catania, Italy.

16:10-18:30 **POSTER SESSION I**

in parallel

16:10-18:30 **STUDENT AWARD ORAL SESSION**
Session: chair: W. Skorupa

POSTER SESSION I

Tuesday, May 30, 2006
16:10 – 18:30

U/PI.1 GROWTH OF A THIN YSI2-X LAYER ON SI(111) BY ION BEAM SYNTHESIS - **Rachid Ayache**
R. AYACHE1, A. BOUABELLOU2, F. EICHHORN3 and E. RICHTER3 1 Pharmacy Department, University of Batna, 05000 Algeria. 2 Laboratoire Couches Minces et Interfaces, Campus Chaab Errassas,Université Mentouri de Constantine, 25000 Algeria. 3 Forschungszentrum Rossendorf, Institute of Ion Beam Physics and Materials Research, POB 510119, D-01314 Dresden, Germany.

U/PI.2 DEPOSITION OF CR-DOPED SRZRO3 THIN FILMS DEPOSITED ON SI SUBSTRATES AND THEIR RESISTANCE SWITCHING CHARACTERISTICS - **Jeon-Kook Lee**
Min Kyu Yang, Dal-Young Kim, Jae-Wan Park, Kyooho Jung, and Jeon-Kook Lee* Thin Film Materials Research Center, Korea Institute of Science and Technology, 39-1 Haweolgog Seongbook, Seoul 136-791, Korea

U/PI.3 PULSED VOLTAGE WIDTH VARIATION ON RESISTIVE SWITCHING IN CR-DOPED SRZRO3 FILMS ON SI SUBSTRATES - **Jeon-Kook Lee**
Jae-Wan Park, Min Kyu Yang, Kyooho Jung, and Jeon-Kook Lee* Thin Film Materials Research Center, Korea Institute of Science and Technology, 39-1 Haweolgog Seongbook, Seoul 136-791, Korea

U/PI.4 THE RESEARCH OF HIGH QUALITY STRAIN-RELAXED GE THIN FILMS BY HRXRD - **Tsung-Chieh Cheng**
M. H. Cheng, S. L. Hsu, T. C. Cheng*, H. M. Lin, W. J. Huang, M. N. Chang National Nano Device Laboratories (NDL), HsinChu, Taiwan Y. P. Chang (Yen Po Chang) Industrial Technology Research Institute (ITRI), Taiwan

U/PI.5 LOW-TEMPERATURE MOLECULAR BEAM EPITAXY OF FE3SI ON SIGE - **Koji UEDA**
K. Ueda, H. Takeuchi, R. Kizuka, M. Kumano, A. Kenjo, T. Sadoh and M. Miyao, Depart. of Electronics, Kyushu University, 6-10-1 Hakozaki, Fukuoka 812-8581, JAPAN

U/PI.6 TEMPERATURE DEPENDENCE OF DRAIN CURRENT HYSTERESIS IN FD AND PD-SOI N-MOSFETS - **Hidenori Ohyama**
K. Hayama, K. Takakura, H. Ohyama, Kumamoto National College of Technology, 2659-2, Suya, Kikuchi, Kumamoto, 861-1102, Japan, J. M. Rafí, Institut de Microelectrònica de Barcelona (CNM-CSIC), Spain, A. Mercha, E. Simoen, IMEC, Leuven, Belgium, C. Claeys, IMEC, Leuven, Belgium and KU Leuven, Leuven, Belgium

U/PI.7 INVESTIGATION OF STRAIN, RELAXATION DEGREE, INTERFACE ROUGHNESS AND POROSITY OF SIGE/SI MODFET HETEROSTRUCTURES - **Alex Ulyanenkov**
A.Ulyanenkov1, M.Myronov2, Y. Shiraki2, K.Saito3 1Bruker AXS GmbH, Östliche Rheinbrückenstr. 49, 76187 Karlsruhe 2 Advanced Research Laboratories, Musashi Institute of Technology, 8-15-1 Todoroki, Setagaya-ku 158-0082, Tokyo, Japan 3Bruker AXS K.K., Yokohama, Kanagawa 221-0022, Japan

U/PI.8 PHOTOLUMINESCENCE AND TEM EVALUATION OF DEFECTS GENERATED IN SIGE-ON-INSULATOR VIRTUAL SUBSTRATE FABRICATION: TEMPERATURE RAMPING PROCESS - **Dong Wang**
Dong Wang(a), Seiichiro Ii(a), Ken-ichi Ikeda(b), Hideharu Nakashima(b), Koji Matsumoto(c), Masahiko Nakamae(c), and Hiroshi Nakashima(a) (a)Art, Science and Technology Center for Cooperative Research, Kyushu University (b)Department of Molecular and Materials Sciences, Interdisciplinary Graduate School of Engineering Sciences, Kyushu University (c)SUMCO Corporation

U/PI.9 HYDROGEN DILUTION EFFECT ON MICROSTRUCTURE OF SI FILM GROWN BY CATALYZER ENHANCED CHEMICAL VAPOR DEPOSITION (CECVD) - **Han-Ki Kim**
Han-Ki Kim School of Advnaced Materials and Systems Eng. Kumoh National Institute of Technology (KIT)

U/PI.10 FORMATION OF SCHOTTKI BARRIER IN CZOCHRALSKI SILICON WAFER - **Alexander Fedotov**
A.V. Frantskevich, Belarusian National Technical University, Minsk, 220063 Belarus, A.V. Mazanik, A.K. Fedotov, Belarusian State University, Minsk, 220050 Belarus

U/PI.11 FORMATION OF BURIED INSULATING SI3N4 LAYER IN SILICON - **Alexander Fedotov**
A.V. Frantskevich, N.V. Frantskevich, Belarusian National Technical University, Minsk, 220063 Belarus, A.V. Mazanik, A.K. Fedotov, Belarusian State University, Minsk, 220050 Belarus

U/PI.12 CHANGE OF SIO2 ON SI LAYER BY YAG:ND LASER RADIATION - **Arturs Medvids**
A.Medvid'1, P.Onufrijevs1, E.Mellikov2, D.Kropman2, F.Muktepavela3, G.Bakradze3 1Riga Technical University, 14 Azenes Str., LV-1048, Riga, Latvia 2Tallin University of Technology, Ehitajate tee 5, 19086tallinn, Estonia 3 University of Latvia, 8, Kengaraga Str.,LV-1063, Riga, Latvia

U/PI.13 SCHOTTKY BARRIER MODULATION OF COSI2/SI CONTACT BY CHARGE TRANSFER DOPING USING CESIUM IMPLANTATION INTO OXIDE LAYERS - **Kenji Kimoto**
K. Kimoto (a), T. Tada (b) and T. Kanayama (b), (a) MIRAI-ASET and (b) MIRAI-ASRC, AIST AIST Tsukuba Central 4, 1-1-1 Higashi, Tsukuba 305-8562, Japan

U/PI.14 STRAIN RELAXATION IN THIN SIGE EPILAYERS DOPED WITH CARBON - **V.M.Dzhagan**
M.Ya.Valakh, V.M.Dzhagan, O.S.Lytvyn, V.P.Melnik, B.M.Romanjuk, V.O.Yukhymchuk Lashkaryov Institute of Semiconductor Physics, NAS of Ukraine, Prospekt Nauki 45, 03028 Kyiv, Ukraine

U/PI.15 STRESS INSTABILITIES INDUCED BY THERMAL ANNEALING IN PLASMA-ENHANCED CHEMICAL VAPOR DEPOSITED SILICON NITRIDE FILMS AS A FUNCTION OF REFRACTIVE INDEX - **Pierre Morin**
Pierre Morin, Christine Rossato ST Microelectronics 850 rue Jean Monnet - F38926 Crolles

U/PI.16 GROOVE OF GRAIN BOUNDARIES IN MULTICRYSTALLINE SILICON: EFFECT ON SOLAR CELLS PERFORMANCES - **Mongi Bouaicha**
W. Dimassi, M. Bouaïcha*, H. Nouri, M.F. Boujmil, B. Bessaïs. Laboratoire de Photovoltaïque et des Semi-conducteurs, Centre de Recherche et des Technologies de l\'Energie, BP 95 Hammam-Lif, 2050, Tunisie

U/PI.17 COMBINATION OF GETTERING AND ETCHING IN MULTICRYSTALLINE SILICON USED IN SOLAR CELLS PROCESSING - **Mongi Bouaicha**
W. Dimassi, M. Bouaïcha*, H. Nouri, B. Bessaïs. Laboratoire de Photovoltaïque et des Semi-conducteurs, Centre de Recherche et des Technologies de l\'Energie, BP 95 Hammam-Lif, 2050, Tunisie

U/PI.18 GROWTH OF SIGE FILMS ON SI(100) WITH THE SUBLIMATING SI SOURCES IN GEH4 GAS ATMOSPHERE - **Ludmila Krasilnikova**
S.P. Svetlov, V.G. Shengurov, V.Ju. Chalkov, S.A. Denisov, Physico-Technical Research Institute, Nizhny Novgorod State University, Gagarin Ave. 23, 603950 Nizhny Novgorod, Russia, L.V. Krasilnikova, M.V. Stepikhova, Ju.N. Drozdov, M.N. Drozdov, Z.F. Krasilnik, Institute for Physics of Microstructures, Russian Academy of Sciences, GSP-105, 603950 Nizhny Novgorod, Russia

U/PI.19 STRAIN AND THERMAL STABILITY OF THIN SILICON OVERLAYERS ON AND BETWEEN SIO2 - **Hiroo Omi**
H. Omi1), T. Kawamura1), Y. Kobayashi1), S. Fujikawa2), Y. Tsusaka2), Y. Kagoshima2), J. Matsui3) 1)NTT Basic Research Laboratories, NTT Corporation, Atsugi, Japan 2)Graduate School of Material Science, University of Hyogo, Japan 3)Center for Advanced Science & Technology, Japan

U/PI.20 IN SITU INVESTIGATION OF CAPILLARY CONDENSATION PHENOMENA IN POROUS SILICON NANOSTRUCTURES BY MEANS OF GISAXS AND SAXS MEASUREMENTS - **Massimo Angeloni**
M. Angeloni1, L. Moretti2, V. Mocella1, L. De Stefano1, L. Rotiroti1, I. Rea1 and S. Bernstorff3 1 CNR – IMM sez. di Napoli, via P. Castellino 111 – 80131 Napoli (Italy) 2DIMET-Università Mediterranea, Località Feo di Vito, 89060 Reggio Calabria, Italy. 3 Lab. Nazionali ELETTRA - Strada Statale 14 - km 163,5 in AREA Science Park - 34012 Basovizza, Trieste(Italy)

U/PI.21 CV CHARACTERISTICS OF POLYCRYSTALLINE SIGE FILMS WITH LOW GE CONCENTRATION - **Ioshiaki Doi**
R. C. Teixeira, I. Doi, M. B. P. Zakia, J. A. Diniz, J. W. Swart School of Electrical and Computer Engineering (FEEC) and Center for Semiconductor Components (CCS), State University of Campinas (UNICAMP), P.O. Box. 6101, CEP 13083-970, Campinas-SP, Brazil

U/PI.22 SURFACE MORPHOLOGY OF NI/PT SILICIDE FILMS ON F AND B ION IMPLANTED SILICON - **Ioshiaki Doi**
I. Doi(1), R. E. Santos(1), J. A. Diniz(1), J. W. Swart(1) and S. G. Santos Fo (2) (1) School of Electrical and Computer Engineering (FEEC), and Center for Semiconductor Components (CCS), State University of Campinas (UNICAMP), P.O. Box. 6101, CEP 13083-970, Campinas-SP, Brazil. (2) Laboratory of Integrated Systems (LSI), Polytechnic School, University of São Paulo (USP), R. Luciano Gualberto, 158, CEP 05508900, S. Paulo-SP, Brazil.

U/PI.23

METAL AND ORGANIC CONTAMINATION EFFECTS ON THE CHARACTERISTICS OF THIN OXIDES TERMALLY GROWN ON SILICON BASED WAFERS - **Gabriella Borionetti**

G.Borionetti, P.Geranzani, P.Godio, F.Bonoli, F.Pagani, C.Pello' MEMC Electronic Materials SpA Viale Gherzi, 31 28100 Novara (Italy)

U/PI.24

TEM STUDY OF PTSI CONTACT LAYERS FOR ACCUMULATED LOW SCHOTTKY BARRIER MOSFET - **Adam LASZCZ**

A. Laszcz, J. Katcki, J. Ratajczak, A.Czerwinski Institute of Electron Technology, Al. Lotników 32/46, 02-668 Warsaw, Poland E. Dubois, G. Larrieu IEMN/ISEN, UMRS CNRS 8520, Avenue Poincare, Cite Scientifique, BP 69, 59652 Villeneuve d'Ascq Cedex, France

U/PI.25

LASER ANNEALING OF PLASMA IMPLANTED BORON FOR ULTRA-SHALLOW JUNCTIONS IN SILICON - **Dimitris Tsoukalas**

A. Florakis1, D. Tsoukalas1,2 , I. Zergioti1, K. Yannakopoulos3, P. Dimitrakis2, D.G Papazoglou4, G. Bennassayag5, H. Bourdon6, A. Halimaoui6 1 Department of Applied Physics, School of Applied Sciences, National Technical University of Athens, 15780 Zographou, Greece 2 Institute of Microelectronics, NCSR Demokritos, 15310 Aghia Paraskevi, Greece 3 Institute of Materials Science, NCSR Demokritos, 15310 Aghia Paraskevi, Greece 4 Foundation for Research and Technology – Hellas, Institute of Electronic Structure and Laser, P.O. Box 1527, Heraklion 711 10, Greece 5 CEMES/CNRS, 29 rue J. Marvig, 31055 Toulouse 4, France 6 ST Microelectronics, 850 rue Jean Monnet, 38926 Crolles cedex, France

U/PI.26

GATE CHARGE CHARACTERISTICS INVESTIGATION OF NEGATIVE BIAS TEMPERATURE INSTABILITIES IN POWER MOSFET RELIABILITY - **Mohamad Alwan**

M. Alwan, K. Ketata, LEMI, Rouen University, 76821 Mont Saint Aignan- France.

U/PI.27

ANALYSIS OF ZNO / AMORPHOUS- / MICROCRYSTALLINE-SI:H STRUCTURE OF SOLAR CELL - **Andrzej Kolodziej**

Andrzej Kolodziej, Pawel Krewniak, Piotr Kolodziej AGH University of Science and Technology Department of Electronics Poland

U/PI.28

SILICIDATION INDUCED POLY-DEPLETION AND FLAT-BAND VOLTAGE SHIFT FOR ULTRA-THIN OXIDE FETS - **Lee Jam-Wem**

Jam-Wem Lee National Nano Device Laboratories

U/PI.29

ELECTRICAL, THERMAL, AND NANOMECHANICAL CHARACTERISTICS OF (TA,AL)N FILMS FOR COPPER METALLIZATION - **Jeremiah Abiade**

S. Viswanathan1, J. T. Abiade1, D. Singh2, R. K. Singh2,3, and D. Kumar1 1Dept. of Mechanical & Chemical Engineering North Carolina A&T State University Greensboro, NC 27411 2Sinmat, Inc. Gainesville, FL 32641 3Dept. of Materials Science & Engineering University of Florida Gainesville, FL 32611

U/PI.30

SHOCK CRYSTALLIZATION IN THE AMORPHOUS SILICON LAYERS - **Kamel Mirouh**

K. Mirouh, Laboratoire des Couches Minces et Interfaces, Université de Constantine, Route d'Ain El Bey, 25000 Constantine, Algérie

Wednesday, May 31, 2006 — Afternoon
Mercredi, 31 mai 2006 — Après-midi

Session IV: DEFECTS EVOLUTION AND STRAIN
Session: chair: P. Pichler

U-IV.1 14:00 Invited DEFECTS EVOLUTION AND DOPANT ACTIVATION ANOMALIES IN ION IMPLANTED SILICON - **Fuccio Cristiano**
F.Cristiano, Y.Lamrani, F.Severac, M.Gavelle LAAS-CNRS, 7 avenue du Colonel Roche, 31077 Toulouse, France S.Boninelli, N.Cherkashin, A.Claverie CEMES/CNRS, 29 rue J. Marvig, 31055 Toulouse, France W.Lerch, S.Paul Mattson Thermal Products GmbH, Daimlerstr. 10, D-89160 Dornstad, Germany R. Duffy Philips Research Leuven. Kapeldreef 75. 3001 Leuven. Belgium

U-IV.2 14:30 TRANSFORMATION OF {113} DEFECTS INTO DISLOCATION LOOPS MEDIATED BY A NOVEL ROD-LIKE DEFECT - **Simona Boninelli**
Simona Boninelli, CEMES-CNRS, 29, Rue Jeanne Marvig, 31055 Toulouse Nikolay Cherkashin, CEMES-CNRS, 29, Rue Jeanne Marvig, 31055 Toulouse Alain Claverie, CEMES-CNRS, 29, Rue Jeanne Marvig, 31055 Toulouse Fuccio Cristiano, LAAS-CNRS, 7, Avenue du Colonel Roche, 31055 Toulouse

U-IV.3 14:50 ANNEALING STUDIES OF CLUSTER DEFECTS IN ION-IMPLANTED SILICON USING HIGH RESOLUTION DLTS - **Jan Evans-Freeman**
M A Gad and J Evans-Freeman Materials and Engineering Research Institute Sheffield Hallam University Howard Street Sheffield S1 1WB United Kingdom

U-IV.4 15:10 EXCESS VACANCIES IN HIGH ENERGY ION IMPLANTED SIGE - **Reinhard Koegler**
R. Kögler1, A. Peeva2, A. Mücklich1, A. Kuznetsov3, J. Christensen 3, W. Skorupa1, and B.G. Svensson3 1Forschungszentrum Rossendorf, PF 510119, D-01314 Dresden, Germany 2Institute of Solid State Physics BAS, Blvd. Tzarigradsko Chaussee 72, 1784 Sofia, Bulgaria 3University of Oslo,P.O. Box 1048 Blindern, NO-0316 Oslo, Norway

U-IV.5 15:30 OPTICAL STRAIN MEASUREMENT IN ULTRATHIN SSOI WAFERS - **Jean-Marie Bluet**
J. Munguia, G. Brémond, C. Bru, A. Sibaï and J.-M. Bluet Laboratoire de Physique de la Matière (UMR CNRS 5511), INSA de Lyon, Bât. Blaise Pascal, 7 Avenue Jean Capelle, 69621 Villeurbanne cedex, France

15:50 **BREAK**

Session V: ADVANCED DIFFUSION STUDIES IN SI AND SIGE
Session: chair: B. Svensson

U-V.1 16:10 Invited ADVANCED DIFFUSION STUDIES IN SI AND SIGE - **Hartmut Bracht**
Hartmut Bracht, Institute of Material Physics, University of Muenster, D-48149 Muenster, Germany

U-V.2 16:40 Invited ATOMISTIC SIMULATION OF INTERSTITIAL CLUSTER MIGRATION IN SILICON - **Matthias Posselt**
Forschungszentrum Rossendorf, Institute of Ion Beam Physics and Materials Research, P.O.Box 510119, D-01314 Dresden, Germany

U-V.3 17:10 ISO-CONCENTRATION STUDY OF B DIFFUSION ATOMISTIC MECHANISM IN EXTRINSIC CONDITIONS - **De Salvador Davide**
D. De Salvador, E. Napolitani, G. Bisognin, A. Carnera MATIS CNR-INFM and Dipartimento di Fisica, Università di Padova, Via Marzolo 8, I-35131 Padova, ITALY S. Mirabella, G. Impellizzeri, F. Priolo MATIS CNR-INFM and Dipartimento di Fisica e Astronomia, Università di Catania, Via S. Sofia 64, I-95123 Catania, ITALY

U-V.4 17:30 REDISTRIBUTION OF DOPING ELEMENTS IN SIGE NANOSTRUCTURES - **Isabelle Berbezier**
I. Berbezier(1), J.P. Ayoub(1), A. Ronda(1), A. Portavoce(1), P. Ferrandis(1), K. Lyutovich(2), M. Oehme(2), J. Werner(2), E. Kasper(2)Marina Berti (3), Marco Di Marino (3), Enrico Napolitani (3) (1) L2MP - CNRS Polytech Marseille, Technopole de Château Gombert, 13451 Marseille Cedex 20 (2) University of Stuttgart, Institut fuer Halbleitertechnik, Pfaffenwaldring 47, 70569 Stuttgart, Germany (3) MATIS-CNR-INFM and Dipartimento di Fisica, Università di Padova, Via Marzolo 8, 35131 Padova, ITALY

U-V.5 17:50 NITROGEN IN SILICON: TRANSPORT AND MECHANICAL PROPERTIES - **John Murphy**
J.D. Murphy, C.R. Alpass, A. Giannattasio, S. Senkader, R.J. Falster*, P.R. Wilshaw Department of Materials, University of Oxford, Parks Road, Oxford, OX1 3PH, UK * MEMC Electronic Materials SpA, viale Gherzi 31, 28100 Novara, Novara, Italy

Thursday, June 1, 2006 — Morning
Jeudi, 1er juin 2006 — Matin

Session VI: NON EQUILIBRIUM PHENOMENA AND POINT DEFECT ENGINEERING
Session: chair: L. Pelaz

U-VI.1 8:30 Invited DOPANT- AND DEFECT-RELATED NON-EQUILIBRIUM PHENOMENA IN SI - **N.E.B. Cowern**
N.E.B. Cowern Advanced Technology Institute, University of Surrey, Guildford, GU2 7XH, UK

U-VI.2 9:00 Invited POINT DEFECT ENGINEERING IN PREAMORPHIZED SILICON ENRICHED WITH FLUORINE - **Giuliana Impellizzeri**
Giuliana Impellizzeri MATIS CNR-INFM and Dipartimento di Fisica e Astronomia, Università di Catania, Via S. Sofia 64, 95123 Catania, Italy

U-VI.3 9:30 AB INITIO ESTIMATE OF THE CONCENTRATION OF LARGE-SIZE FLUORINE-VACANCY CLUSTERS IN SILICON, AND THEIR SELF-INTERSTITIALS CAPTURE RATIO – **Vincenzo Fiorentini**
Giorgia M. Lopez and Vincenzo Fiorentini, SLACS-CNR and University of Cagliari, Italy

U-VI.4 9:50 EFFECT OF FLUORINE ON BORON DIFFUSION UNDER INTERSTITIAL INJECTION FROM THE SURFACE - **M N Kham**
M. N. Kham, H. A. W. El Mubarek, P. Ashburn, School of Electronics & Computer Science, University of Southampton, Southampton, SO17 1BJ, U.K. and J. M. Bonar, Innos Ltd, Mountbatten Building, Highfield, Southampton, SO17 1BJ, U.K.

U-VI.5 10:10 ROLE OF SURFACE NANOVOIDS ON INTERSTITIAL TRAPPING IN HE IMPLANTED CRYSTALLINE SI – **Salvo Mirabella**
E. Bruno, S. Mirabella, F. Priolo MATIS CNR-INFM and Dipartimento di Fisica e Astronomia, Università di Catania, Via S. Sofia 64,95123 Catania, ITALY F. Giannazzo, C. Bongiorno, V. Raineri CNR-IMM, Sezione di Catania, Stradale Primosole 50, 95121 Catania, ITALY E. Napolitani, A. Carnera MATIS CNR-INFM and Dipartimento di Fisica, Università di Padova, Via Marzolo 8, 35131 Padova, ITALY

10:30 **BREAK**

Session VII: MODELLING
Session: chair: M. Posselt

U-VII.1 10:50 Invited EUROPEAN APPROACHES TO PROCESS SIMULATION IN USJ TECHNOLOGY - **Peter Pichler**
Peter Pichler, Fraunhofer Institute of Integrated Systems and Device Technology (IISB), Schottkystrasse 10, 91058 Erlangen, Germany.

U-VII.2 11:20 SEGREGATION AND DIFFUSION OF B IN STRAINED SIGE: COMPARISON OF THEORETICAL CALCULATIONS TO EXPERIMENTAL RESULTS - **Scott Dunham**
Scott T. Dunham, Chihak Ahn, Jakyoung Song, and Jason Guo Dept. of Electrical Engineering, Dept. of Physics University of Washington, Box 352500, Seattle, WA 98195

U-VII.3 11:40 MODELING CHARGED DEFECTS, DOPANT DIFFUSION AND ACTIVATION MECHANISMS FOR TCAD SIMULATIONS USING KINETIC MONTE CARLO. - **Martin-Bragado Ignacio**
Ignacio Martin-Bragado, S. Tian, M. Johnson, Synopsys Inc. 700 E. Middlefield Road, Mountain View, 94043 CA, USA. P. Castrillo, R. Pinacho, J. Rubio and M. Jaraiz. Dept. of Electronics, University of Valladolid, Campus Miguel Delibes. Camino del Cementerio S/N. 47011. Valladolid. Spain.

U-VII.4 12:00 COMPARISON OF PROCESS OF DIFFUSION OF INTERSTITIAL OXYGEN ATOMS AND INTERSTITIAL HYDROGEN MOLECULES IN SILICON AND GERMANIUM CRYSTALS: QUANTUMCHEMICAL SIMULATION - **Vasili Gusakov**
Vasilii Gusakov Institute of Solid State and Semiconductor Physics, P. Brovka str. 17, 2200 72 Minsk, Belarus

U-VII.5 12:20 Invited ULTRA-SHALLOW JUNCTION BY LASER ANNEALING: INTEGRATION ISSUES AND MODELLING - **Antonino La Magna**
A. La Magna, P. Alippi, I Deretzis, V. Privitera, CNR-IMM, Catania, Italy, G. Fortunato, CNR-IFN, Rome, Italy, A. Magrì, STMicroelectronics, Catania, Italy, E.V. Monakhov, B.G. Svensson, Department of Physics, University of Oslo, Norway

12:50 **LUNCH**

Thursday, June 1, 2006 — Afternoon
Jeudi, 1er juin 2006 — Après-midi

Session VIII: CHARACTERIZATION
Session: chair: G. Brauer

U-VIII.1 14:20 Invited POSITRON ANNIHILATION SPECTROSCOPY OF VACANCY TYPE COMPLEXES IN SIGE - **Jonatan Slotte**
J. Slotte, Laboratory of Physics, Helsinki University of Technology, P.O.Box 1100, FIN-02015 HUT, Finland

U-VIII.2 14:50 BEYOND SRP: QUANTITATIVE CARRIER PROFILING WITH M4PP - **Trudo Clarysse**
T.Clarysse(a), W. Vandervorst(a,b), R. Lin(c), D.H.Petersen(c), P.F.Nielsen(c), (a) IMEC, Kapeldreef 75, B-3001 Leuven, Belgium (b) K.U.Leuven, Electrical Engineering Dept.,INSYS, Kasteelpark Arenberg 10, B-3001 Leuven, Belgium (c) CAPRES A/S, Scion-DTU, building 373, DK-2800 Kongens Lyngby, Denmark

U-VIII.3 15:10 SCANNING SPREADING RESISTANCE MICROSCOPY OF SHALLOW DOPING PROFILES IN SILICON - **Suchodolskis Arturas**
A. Suchodolskis-1*, A. Hallén-1, J. Gran-2, and T.-E. Hansen-3 1-Royal Inst. of Technology, IMIT-MSP, P.O. Box Electrum 229 SE-164 40 Kista, Sweden 2-Justervesendet, Fetveien 99, N-2007 Kjeller, Norway 3-AME, P.O. Box 83, N-3191 Horten, Norway

U-VIII.4 15:30 A NOVEL METHODOLOGY FOR THE CHARACTERIZATION OF DISPLACEMENT FIELDS IN PATTERNED NANOSTRUCTURES BY TEM/CBED - **Alessio Spessot**
A. Spessot(1), S. Frabboni(1), R. Balboni(2) and A. Armigliato(2) (1) National Research Center S3, CNR-INFM and Department of Physics, University of Modena e Reggio Emilia, Via G. Campi 213/A, 41100 Modena, Italy (2) CNR-IMM Section of Bologna, Via P. Gobetti 101, 40129 Bologna, Italy

U-VIII.5 15:50 QUANTITATIVE LOCAL STRAIN AND COMPOSITION MEASUREMENTS IN THIN BILAYERS OF BIAXIAL COMPRESSIVE STRAINED GE/TENSILE STRAINED SI GROWN BY RP-CVD ON A RELAXED SI0.5GE0.5 VIRTUAL SUBSTRATE - **Nikolay Cherkashin**
Cherkashin N., Snoeck E., Hÿtch M. J., Claverie A. CEMES-CNRS, 29 rue J. Marvig, 31055 Toulouse, France, Hartmann J.M. CEA-DRT, LETI/D2NT & DPTS, CEA – GRE, 17 avenue des Martyrs, 38054 Grenoble Cedex, France, Bogumilowicz Y. STMicroelectronics, 850 rue Jean Monnet, 38921 Crolles Cedex, France

16:10-18:30 **POSTER SESSION II**

POSTER SESSION II
Thursday, June 1, 2006
16:10 – 18:30

U/PII.1 STABILITY STUDY OF ELECTRICAL JUNCTION FORMED BY LOW ENERGY BORON IMPLANTATION AND SPIKE ANNAEALING - **Mao-Nan Chang**
M. N. Chang, National Nano Device Laboratories, No. 26, Prosperity Rd. I, Science-based Industrial Park, 30078 Hsinchu, Taiwan H.-T. Cheng and F. T. Chien, Feng-Chia University, No. 100, Wenhwa Rd., 40724 Taichung, Taiwan

U/PII.2 STRESS DEPENDENT TRANSFORMATION OF INTERSTITIAL OXYGEN IN PROCESSED GE - DOPED CZ-SI - **Andrzej Misiuk**
A.Misiuk, W.Jung, M.Prujszczyk, Institute of Electron Technology, Al. Lotnikow 46, 02-668 Warsaw, Poland, C.A.Londos, University of Athens, Panepistimiopolis Zografos, Athens 157 84, Greece, Deren Yang, State Key Lab of Silicon Materials, Zhejiang University, Hangzhou 310027, P.R. China, J. Bak-Misiuk, Institute of Physics, PAS, Al. Lotnikow 32/46, 02-668 Warsaw, Poland

U/PII.3 TWO-DIMENSIONAL SIMULATION OF TEMPERATURE EFFECTS ON ELECTRICAL PARAMETERS DEGRADATION OF POWER RF LDMOS DEVICE - **Mohamed Ali belaid**
M. A. Belaid, K. Ketata, J. Marcon, LEMI, Rouen University, 76821 Mont Saint Aignan – France.

U/PII.4 DEFECTS CREATED INTO OXIDE AND AT THE INTERFACE IN A POWER RF LDMOS AFTER AGEING TEST - **Mohamed Gares**
M. Gares, J. Marcon, LEMI, Rouen University, 76821 Mont Saint Aignan – France and P. Eudeline, THALES Air Defence, ZI du Mont Jarret, 76520 Ymare, France

U/PII.5 QUANTITATIVE MODELING OF THE EVOLUTION OF THE PORE SHAPE AND PORE DISTRIBUTION IN POROUS SILICON DURING HIGH TEMPERATURE ANNEALING - **Moustafa Ghannam**
Moustafa M. Hassan and Moustafa Y. Ghannam, Physics Department, School of Sciences and Engineering, American University in Cairo P.O. Box 2511, Cairo 11511, Egypt. Jef Poortmans and Robert Mertens, IMEC, kapeldreef 75, 3001, Leuven, Belgium

U/PII.6 EXTRACTING ACTIVE DOPANT PROFILE INFORMATION FROM CARRIER ILLUMINATION POWER CURVES - **Fabian Dortu**
Fabian Dortu: IMEC, Kapeldreef 75, B-3001 Leuven, Belgium. and also KU Leuven, Electrical Engineering Dept., INSYS, Kasteelpark Arenberg 10, B-3001 Leuven, Belgium. Trudo Clarysse: IMEC, Kapeldreef 75, B-3001 Leuven, Belgium Wilfried Vandervorst: IMEC, Kapeldreef 75, B-3001 Leuven, Belgium. and also KU Leuven, Electrical Engineering Dept., INSYS, Kasteelpark Arenberg 10, B-3001 Leuven, Belgium.

U/PII.7 SIMULTANEOU DIFFUSION OF AS AND SI IN SI USING ISOTOPE 30SI - **Satoru Matsumoto**
N. Fujiwara, Keio University Y. Nakabayashi, Keio University S. Matsumoto, Keio University

U/PII.8 HIGH-CONCENTRATION DIFFUSION PROFILE MODELLING OF LOW-ENERGY ION-IMPLANTED B AND BF2 IN SILICON : STUDY OF FLUORINE EFFECT ON BORON DIFFUSION - **Jerome Marcon**
Jerome Marcon and K. Masmoudi Universite de Rouen Laboratoire LEMI 76821 Mont Saint Aignan, France

U/PII.9 MODELLING OF HYDROGEN DIFFUSION IN SILICON CRYSTALS - **Alexander Fedotov**
Anis Saad, Al-Balqa Applied University, P.O.Box 2041, Amman 11953, Jordan, O.I. Velichko, Yu.P. Shaman, Belarusian State University of Informatics and Radioelectronics, Minsk, 220027 Belarus, A.K. Fedotov, A.V. Mazanik, Belarusian State University, Minsk, 220004 Belarus

U/PII.10 EVOLUTION OF RADIATION-INDUCED CARBON-OXYGEN-RELATED DEFECTS IN SILICON UPON ANNEALING: LVM STUDIES - **Leonid Murin**
L.I. Murin, Institute of Solid State and Semiconductor Physics, Minsk 220072, Belarus, J.L. Lindstrom, University of Lund, S-221 00 Lund, Sweden, G. Davies, Kings College London, London WC2R 2LS, UK, V.P. Markevich, University of Manchester, Manchester M60 1QD, UK

U/PII.11 STRUCTURAL AND ELECTRICAL CHARACTERIZATION OF DEFECTS INTO P+N JUNCTIONS FORMED BY GE-PREAMORPHISED SILICON - **Dimitra Girginoudi**
D. Girginoudi, N. Georgoulas and A. Thanailakis

U/PII.12 THERMAL DONOR FORMATION IN SILICON ENHANCED BY HIGH-ENERGY HELIUM IRRADIATION - **Pavel Hazdra**
P. Hazdra and V. Komarnitskyy, Department of Microelectronics, Czech Technical University in Prague, Technická 2, CZ-16627, Prague 6, Czech Republic

U/PII.13 EFFECT OF HIGH PRESSURE ANNEALING ON ELECTRICAL PROPERTIES OF NITROGEN AND GERMANIUM DOPED SILICON - **Wojciech Jung**
W. Jung[1], A. Misiuk[1], D. Yang[2], B. Surma[3] [1]Institute of Electron Technology, al. Lotników 32/46, 02-668 Warsaw, Poland [2]Zhejiang University, Hangzhou 310027, PR China, [3]Institute of Electronic Materials Technology, Wolczynska 133, 01-919 Warsaw, Poland

U/PII.14 STRUCTURAL AND NUCLEAR CHARACTERISATIONS OF DEFECTS CREATED BY NOBLE GAS IMPLANTATION IN SILICON OXIDE. - **Hanan ASSAF**
H. Assaf (1), E. Ntsoenzok (1,2), M.O. Ruault (3), M-F. Barthe (1), S. Ashok (4). 1 CERI-CNRS, 3A, rue de la férollerie, 45071 Orléans, France 2 LESI, University of Orléans, 21 rue de Loigny la bataille, 28000 Chartres, France 3 CSNSM, CNRS-IN2P3, Batiment 108-F-91405 Orsay, France 4 Department of Engineering Science, the Pennsylvania State University, 212 Earth and Engineering Science Building, University Park, PA 16802, USA.

U/PII.15 TEM CHARACTERIZATION OF EXTENDED DEFECTS INDUCED IN SI WAFERS BY H PLASMA TREATMENT - **Corneliu Ghica**
C. Ghica, L. C. Nistor National Institute for Materials Physics, PO Box MG-7 Magurele, 077125 Bucharest, Romania H. Bender, O. Richard IMEC, Kapeldreef 75, B-3001 Leuven, Belgium G. Van Tendeloo EMAT, University of Antwerp, Groenenborgerlaan 171, B-2020 Antwerpen, Belgium

U/PII.16 THE EFFECT OF ARSENIC DOSE ON THE BORON DIFFUSION IN THE POLYSILICON ON MONOSILICON DURING RAPID THERMAL ANNEALING. - **Abdelali Merabet**
A. MERABET, Laboratoire de Physique et Mécanique des Matériaux Métalliques (LPMMM), D'O.M.P., Faculté des Sciences de l'Ingénieur, Université Ferhat Abbas, Sétif (19000), Algérie,and J. MARCON, Laboratory of electronic Microtechnology and instrumentation (LEMI), University of Rouen,76821 Mont Saint Aignan, France.

U/PII.17 SIH2 SOLID STATE PHASE FORMATION IN NANO- AND MICROCRYSTALS OF SI:H ALLOYS - **Vladimir Popov**
V.P. Popov, A.K. Gutakovskyi, L.N. Safronov, O.V. Naumova, Institute of Semiconductor Physics, Novosibirsk, 630090 RUSSIA

U/PII.18 PHOTO-IONIZATION CROSS SECTION OF NICKEL DEEP LEVEL IN SILICON INVESTIGATED BY A TEMPERATURE VARIATION OF PIEZOELECTRIC PHOTOTHERMAL AND SURFACE PHOTOVOLTAGE SIGNALS - **Tetsuo Ikari**
S. Sato, S. Tanaka*, H. Yokoyama, K. Sakai, A. Fukuyama, M. Ozeki and T. Ikari DEEE and DMS, Miyazaki University, 1-1 Gakuen Kibanadai-nishi Miyazaki, 889-2192 Japan, *Department of Electronics, Fukuoka Institute of Technology, 3-30-1 Wajiro-Higashi, Fukuoka, 811-0295 Japan

U/PII.19 EFFECT OF INTERFACE STATES AT SIO2/SI BOUNDARIES ON SURFACE PHOTOVOLTAGE AND PIEZOELECTRIC PHOTOTHERMAL SPECTRA - **Fukuyama Atsuhiko**
H. Hayashi, T. Saisho, K. Sakai, A. Fukuyama, M. Suemits*, and T. Ikari University of Miyazaki, and *Tohoku University, Japan

U/PII.20 HYDROGEN GETTERING AT BURIED DEFECT LAYERS IN ION-IMPLANTED SILICON BY PLASMA HYDROGENATION AND SUBSEQUENT ANNEALING. - **Alexander Ulyashin**
A.G. Ulyashin1, J.S. Christensen1, B.G. Svensson1, R. Kogler2, W. Skorupa2 1University of Oslo, Center for Materials Science and Nanotechnology, P.O. Box 1048 Blindern, NO-0316 Oslo, Norway 2Institut für Ionenstrahlphysik und Materialforschung, Forschungszentrum Rossendorfe, PF 510119, D-01314, Dresden, Germany

U/PII.21 CARBON SURFACE DIFFUSION AND SIC NANOCLUSTER SELF-ORDERING - **Joerg Pezoldt**
J. Pezoldt1, Yu.V. Trushin2,3, V.S. Kharlamov2,3, A.A. Schmidt2,3, V. Cimalla1, O. Ambacher1 1 FG Nanotechnologie, TU Ilmenau, Postfach 100565, 98684 Ilmenau, Germany 2 Institution for Research and Education "Saint-Petersburg Physico-Technical Centre for Research and Education" of RAS, 8/3, Chlopin st., St.Petersburg 195220, Russian Federation 3 Ioffe-Physico-Technical Institute of RAS, 26, Politekhnicheskaya st., St.Petersburg 194021, Russian Federation

U/PII.22 NEW LOW TEMPERATURE METHOD OF P-N JUNCTION FABRICATION IN SI - **Alexander Buzynin**
A.N.Buzynin, A.E.Luk'yanov, V.V.Osiko, A.M.Prokhorov General Physics Institute, Russian Academy of Sciences, Vavilov Str 38D, 119991 Moscow, Russia, V.V.Voronkov, MEMS Electronic Materials, via Nazionale 59, 39012 Merano, Italy

U/PII.23 OBSERVATION OF STEPLIKE SHEET RESISTANCE INCREASE OF SHALLOW DOPED BARE SILICON DURING INITIAL CONTACT TO AIR - **Bodo Kalkofen**
Bodo Kalkofen and Edmund P. Burte Institute of Micro and Sensor Systems, Otto von Guericke University of Magdeburg, Universitaetsplatz 2, 39106 Magdeburg, Germany

U/PII.24 DIELECTRIC FUNCTION OF DISORDER IN HIGH-DOSE HELIUM-IMPLANTED SILICON - **Peter Petrik**

P. Petrik, M. Fried, T. Lohner, N. Q. Khánh, P. Basa, and J. Gyulai Research Institute for Technical Physics and Materials Science, H-1525 Budapest, P.O.Box 49, Hungary F. Cayrel and D. Alquier University of Tours, Laboratoire de Microélectronique de Puissance, 16, rue Pierre et Marie Curie, B.P. 7155, F37071 Tours Cedex, France

U/PII.25 X-RAY STUDIES OF ULTRA-THIN SI WAFERS FOR MIRROR APPLICATION - **Barbara Surma**

J. Sass*, K. Mazur*, F. Eichhorn**, B. Surma*, D. Litwin***, J. Galas*** * Institute of Electronic Materials Technology, Ul.Wólczynska 133, PL- 01-919 Warsaw, Poland **Institut für Ionenstrahlphysik und Materialforschung, Forschungszentrum Rossendorf, D-01314 Dresden, Germany ***Institute of Applied Physics ul. Kamionkowska 18, 03-803 Warsaw, Poland

U/PII.26 OPTIMIZATION OF ULTRA-THIN SILICON WAFERS POLISHING PROCESS - **Barbara Surma**

Artur Miros*, Barbara Surma* Bronislaw Piatkowski*, Darek Litwin**, Jacek Galas** *Institute of Electronic Materials Technology, Wólczynska 133, 01-919 Warsaw, Poland **Institute of Applied Physics ul. Kamionkowska 18, 03-803 Warsaw, Poland

U/PII.27 DECAY TIME OF VIBRATIONS OF OXYGEN IN SILICON - **Gordon Davies**

NQ Vinh1, K Kaur2, G Davies2, T Gregorkiewicz3 and KM Itoh4 1 FOM Institute for Plasma Physics, Nieuwegein, The Netherlands 2Physics Department, King's College London, UK 3Van der Waals-Zeeman Institute, University of Amsterdam, The Netherlands 4Keio University, Yokohama 223-8522, Japan

U/PII.28 EXPERIMENTAL MEASUREMENT OF IN-DEPTH SECONDARY DEFECTS DISTRIBUTION PRODUCED BY HELIUM IMPLANTATION IN SILICON - **Luigi Mele**

S.Daliento*, L.Mele*, P.Spirito* B.N.Limata°, L. Gialanella°, M.Romano° * Dept. of Electronic Engineering of University of Naples Federico II ° Dept. of Physic of University of naples Federico II and INFN-Naples

U/PII.29 NEON IMPLANTATION IN SILICON AT DIFFERENT TEMPERATURE - **Suzana Peripolli**

S. Peripolli 1, L. Amaral1, E. Oliviero1, M. F. Beaufort2, J. F. Barbot2, P.F.P. Fichtner3 and S. E. Donnelly4 1 Instituto de Física, UFRGS P.O. Box 15051, 91501-970 Porto Alegre, RS, Brazil 2 Laboratoire de Métallurgie Physique, P.O. Box 30179, 86962 Poitiers, France 3 Departamento de Metalurgia, Universidade Federal do Rio Grande do Sul, P.O. Box 15051, 90035-190 Porto Alegre, RS, Brazil 4University of Salford, Salford, Greater Manchester, M5 4WT, United Kingdom

U/PII.30 SYNCHROTRON X-RAY INVESTIGATION OF ULTRA-SHALLOW SI SURFACE LAYERS DOPED BY AS IMPLANTS. - **Palermo Vincenzo**

S.Milita1, M. Servidori1, F. Germini2, J. Zegenhagen3, F. D'Acapito4, T. H. Metzger3. 1 CNR-IMM, Via Gobetti 101, 40129 Bologna, Italy. 2CNR-IMEM, ParcoArea delle Scienze 37/A, 43010 Fontanini-Parma, Italy. 3ESRF, 6, Rue Jules Horowitz, F-38043 Grenoble, France. 4CNR-INFM-OGG, c/o ESRF GILDA CRG, 6, Rue Jules Horowitz, F-38043 Grenoble, France.

U/PII.31 CHARACTERIZATION OF NEW MATERIALS BY INFRA-RED SPECTROSCOPIC ELLIPSOMETRY - **Jean-Louis Stehle**

Jean-Louis STEHLE, Dorian ZAHORSKI SOPRA S.A., 26 rue Pierre Joigneaux, 92270 Bois-Colombes, France

U/PII.32 IS THERE AN INFLUENCE OF ION BEAM INDUCED INTERFACIAL AMORPHIZATION ON THE A/C-INTERFACE DEPTH IN SILICON AT COMMON IMPLANTATION ENERGIES? - **Gerhard Hobler**

G. Otto1, P. Pongratz2, L. Palmetshofer3, G. Hobler1 1 Inst. f. Festkˆrperelektronik, Techn. Univ. Wien, A-1040 Wien, Austria, 2 Inst. f. Festkˆrperphysik, Techn. Univ. Wien, A-1040 Wien, Austria, 3 Inst. f. Halbleiter- und Festkˆrperphysik, Joh. Kepler Universit‰t Linz, A-4040 Linz, Austria

Friday, June 2, 2006 — Morning
Vendredi, 2 juin 2006 — Matin

Session IX: **DEFECTS AND IMPURITIES I**
Session: chair: **H. Bracht**

U-IX.1 8:30 Invited DEFECTS AND IMPURITIES IN SIGE: THE EFFECT OF ALLOYING - **Abdelmadjid Mesli**
A. Mesli Institut d'Electronique du Solide et des Systèmes, CNRS/ULP, Strasbourg, France Vl. Kolkovsky, L. Dobaczewski, Institute of Physics Polish Academy of Science, Warsaw, Poland A. Nylandsted Larsen Department of Physics and Astronomy, University of Aarhus, 8000 Aarhus C, Denmark N. V. Abrosimov Institute for Crystal Growth, 12489 Berlin, Germany

U-IX.2 9:00 ANNEALING OF THE VACANCY-OXYGEN AND DIVACANCY-OXYGEN COMPLEXES IN SILICON - **Mads Mikelsen**
M. Mikelsen (1), E. V. Monakhov (1), B. S. Avset (2), B. G. Svensson(1) (1) Department of Physics, Physical Electronics, University of Oslo (2) SINTEF ICT

U-IX.3 9:20 DEEP LEVEL GENERATION IN NITROGEN-DOPED FLOAT-ZONE SILICON - **Vladimir Voronkov**
G.I.Voronkova(1), A.V.Batunina(1), L.Moiraghi(2),V.V.Voronkov(3) and R.Falster(2) (1) Institute of Rare Metals, B.Tolmachevski 5, 109017 Moscow, Russia (2) MEMC Electronic Materials, viale Gherzi 31, 28100 Novara 1, Italy (3) MEMC Electronic Materials, via Nazionale 59, 39012 Merano BZ, Italy

U-IX.4 9:40 THE AS2V COMPLEX IN SILICON: BAND GAP LEVELS, MIGRATION AND ANNEALING - **Hanne Kortegaard Nielsen**
H. Kortegaard Nielsen(a), A. Mesli(b), L. Dobaczewski(c), K. Bonde Nielsen(a), C.E.Lindberg(a), V. Privitera(d), A. Nylandsted Larsen(a). (a) Institute of Physics and Astronomy, University of Aarhus, Denmark. (b) Laboratoire de Physique et Applications des Semiconducteurs (PHASE), Centre National de la Recherche Scientifique, Strasbourg, France. (c) Institute of Physics, Polish Academy of Sciences, Warsaw, Poland. (d) CNR-IMM, Catania, Italy

U-IX.5 10:00 RELATION BETWEEN ER LUMINESCENCE AND OXYGEN VIBRATIONAL MODES IN CRYSTALLINE SILICON - **Nguyen Quang Vinh**
N.Q. Vinh 1, S. Minissale 2, G. Davies 3, and T. Gregorkiewicz 2 1 Free Electron Laser Facility, FOM Institute for Plasma Physics "Rijnhuizen", Nieuwegein, The Netherlands 2 Van der Waals-Zeeman Institute, University of Amsterdam, The Netherlands 3 Department of Physics, King's College London, United Kingdom

10:20 **BREAK**

Session X: DEFECTS AND IMPURITIES II
Session: chair: J. Slotte

U-X.1 10:40

ATOMIC STRUCTURE OF EXTENDED DEFECTS IN HYDROGEN IMPLANTED SILICON AND THEIR TRANSFORMATIONS DURING ANNEALING AND SLICING - **Vladimir Popov**

V.P. Popov, M.A. Ilnitsky, L.N. Safronov, Institute of Semiconductor Physics, Novosibirsk, 630090 RUSSIA, G.P. Pokhil, V.M. Fridman, MSU Research Institute of Nuclear Physics, Moscow, 119992, RUSSIA

U-X.2 11:00

EVOLUTION OF HYDROGEN INDUCED DEFECTS DURING ANNEALING OF PLASMA TREATED CZOCHRALSKI SILICON - **Nordmark Heidi**

Heidi Nordmark1, John C. Walmsley1,2, Bård Tøtdal1, Randi Holmestad1, Alexander Ulyashin3, 1Dept of physics, NTNU, N-7491 Trondheim, Norway 2Sintef Materials and Chemistry, N-7465 Trondheim, Norway 3Dept. of Physics, University of Oslo, N-0316 Oslo, Norway

U-X.3 11:20

HYDROGEN IMPLANTATION-INDUCED DEFECTS IN BULK SI STUDIED BY RAMAN SPECTROMETRY - **Christina Villeneuve**

C. Villeneuve(1,2), V. Paillard(2), K. Bourdelle(1), I. Cayrefourcq(1), A. Boussagol(1), and M. Kennard(1), 1Soitec, Parc technologique des Fontaines, 38180 Crolles, 2 LPST, UPS, rte de Narbonne 31000 Toulouse.

U-X.4 11:40

VIBRATIONAL LIFETIMES OF H STRETCH MODES IN SI - **Stefan K. Estreicher**

S.K. Estreicher and D. West Physics Department, Texas Tech University Lubbock TX 79409-1051, USA

U-X.5 12:00

LOW-TEMPERATURE RADIATION CONTROLLED DIFFUSION OF PALLADIUM AND PLATINUM IN SILICON FOR ADVANCED LIFETIME CONTROL - **Pavel Hazdra**

J. Vobecky and P. Hazdra, Department of Microelectronics, Czech Technical University in Prague, Technická 2, CZ-16627, Prague 6, Czech Republic

U-X.6 12:20

FE AND CU IN SI: LATTICE SITES AND TRAPPING AT IMPLANTATION-RELATED DEFECTS - **Ulrich Wahl**

U. Wahl 1,2), J.G. Correia 1,2), E. Rita 1,2), J.P. Araújo 3), J.C. Soares 2), and the ISOLDE collaboration 4) 1) Instituto Tecnológico e Nuclear, EN 10, 2686-953 Sacavém, Portugal 2) Centro de Física Nuclear da Universidade de Lisboa, 1649-003 Lisboa, Portugal 3) Departamento de Física, Universidade do Porto, 4169-007 Porto, Portugal 4) CERN-PH, 1211 Geneva 23, Switzerland

12:40 **CLOSING**

12:50 **LUNCH**