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## ***INFOS 2019, Clare College, Cambridge University, UK***

### ***Program***

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#### **Sunday 31 June 2019**

##### **Welcome Reception**

18:00 - 20:30 The Scholars Garden - drinks (prosecco / soft drinks) and nibbles.

#### **Monday 1 July 2019**

##### **Session 1: Steep Slope Devices**

- 9:00 1.1 S. Datta, (**Plenary**) *Penn State University, USA*, Overcoming the Boltzmann Tyranny in Steep Slope Devices.
- 9:45 1.2 A H Ionescu, (Invited) *EPFL, Switzerland*, Steep Slope Devices with Active Gates for Electronic Functions Near-100 millivolts.
- 10:45 Coffee Break**

##### **Session 2: Negative Capacitance and Ferroelectric HfO<sub>2</sub> I**

- 10:45 2.1 S Sleszacek, (Invited) *NAMLAB, Dresden, Germany*, Switching Kinetics in Hafnium Oxide-based Ferroelectric / Dielectric Bilayer Stacks.
- 11:15 2.2 Min-Hung Lee, (Invited) *National Taiwan Normal University, Taipei, Taiwan*, Ferroelectric HfZrO<sub>2</sub> FETs for Steep Switch Onset.
- 11:45 2.3 Peide Ye, (Invited) *Purdue University, USA*, Ferroelectric and Anti-ferroelectric HfZrO<sub>2</sub>: Scaling Limit and Switch Speed.
- 12:15 2.4 C. Zacharaki\*, P. Tsipas<sup>1</sup>, S. Chaitoglou<sup>1</sup>, S. Fragkos<sup>1</sup>, L. Pintilie<sup>3</sup>, R. Negrea<sup>3</sup>, A. Dimoulas<sup>1</sup>, *Demokritos, Athens*, TiN/ZrxHf1-xO2/Ge Metal-Ferroelectric-Semiconductor Capacitors by Plasma Assisted Molecular Beam Deposition.

**12:30 Lunch**

### Session 3: Negative Capacitance and Ferroelectric HfO<sub>2</sub> II

- 14:00 3.1 S Migita, (Invited) *AIST, Tsukuba, Japan*, Device Simulation of Multi-domain Ferroelectricity in HfO<sub>2</sub>.
- 14:30 3.2 Ava Khosravi, Jaidah Mohan, Heber Hernandez-Ariaga, Jiyoung Kim, Robert M Wallace, *UT Dallas, USA*, In-situ Characterization of Ferroelectric HZO Interfaces.
- 14:45 3.3 T. Onaya<sup>1,2,3</sup>, T. Nabatame<sup>2</sup>, N. Sawamoto<sup>1</sup>, A. Ohi<sup>2</sup>, N. Ikeda<sup>2</sup>, T. Nagata<sup>2</sup>, and A. Ogura<sup>1</sup>, *1 Meiji University, Kawasaki, Japan, 2 NIMS, Tsukuba, Japan*, Ferroelectricity of Hf<sub>x</sub>Zr<sub>1-x</sub>O<sub>2</sub> Thin Films Fabricated Using Plasma-Enhanced Atomic Layer Deposition and Low Temperature Annealing Process.

**15:00 Coffee Break**

### Session 4: SiC

- 15:30 4.1 T Kimoto, (Invited) Dept of Electronic Science and Engineering, *Kyoto University, Kyoto, Japan*, Promise and Future Challenges of SiC Power MOSFETs.
- 16:00 4.2 Xiuyan Li<sup>1</sup>, Sang Soo Lee<sup>2</sup>, Mengjun Li<sup>1</sup>, Alexei Ermakov<sup>1</sup>, Jonnathan Medina-Ramos<sup>2</sup>, Timothy Fister<sup>2</sup>, Voshadhi Amarasinghe<sup>1</sup>, Torgny Gustafsson<sup>1</sup>, Eric Garfunkel<sup>1</sup>, Paul Fenter<sup>2</sup> and Leonard C. Feldman<sup>1</sup>, <sup>1</sup>*Rutgers University, NJ, USA*, <sup>2</sup>*Argonne National Labs, USA*, Mechanism of Nitrogen Passivation of the SiO<sub>2</sub>/SiC(4H-0001) MOS Interface.
- 16:15 4.3 T Hosoi, (Invited) *Graduate School of Engineering, Osaka University, Suita, Osaka, Japan*, SiC/SiO<sub>2</sub> Interfaces.
- 16:45 4.4 T-H Kil, A Tamura and K Kita, *University of Tokyo, Japan*, Anomalous Change of Band Alignment of SiO<sub>2</sub> /4H-SiC (0001) Stacks Induced by the Nitrogen Introduction to The Interface.
- 17:00 4.5 Esteban Garzón<sup>1</sup>, Raffaele De Rose<sup>1</sup>, Felice Crupi<sup>1</sup>, Lionel Trojman<sup>2</sup> and Marco Lanuzza<sup>1</sup>, <sup>1</sup>*University of Calabria, Rende, Italy*; <sup>2</sup>*Universidad San Francisco de Quito (USFQ), Quito, Ecuador*, Assessment of Write and Read Operations in Nanoscaled STT-MRAM Technologies.

**17:30 Poster Session**

## Tuesday 2 July 2019

### Session 5: Magnetic Memory and Computing in Memory

- 9:00 5.1 T Endoh, **(Plenary)** *CIES Dept, Tohoku University, Sendai, Japan*, Nonvolatile Brain-Inspired VLSIs Based on CMOS/MTJ Hybrid Technology for Ultralow-power Performance and Compact Chip.
- 9:45 5.2 Luping Shi, (Invited) *Tsinghua University, Haiden District, Beijing, China*, Brain inspired computing and chip.
- 10:15 Coffee Break**

## Room A

### Session 6A: Neuromorphic computing, Non-volatile Memory Materials

- 10:45 6A.1 Luca Larcher/Andrea Padovani, (Invited) *Uni di Modena e Reggio Emilia + Applied Materials, Italy*. A Defect-Centric Multi-Scale Modeling Approach for The Simulation of Emerging Memory / Neuromorphic Devices.
- 11:15 6A.2 Sabina Spiga, (Invited) *CNR, Agrate, Italy*, RRAM-based Electronic Synapses for Brain Inspired Computing.
- 11:45 6A.3 Yuta Saito,<sup>2</sup> (Invited) *1 AIST, Tsukuba, Japan*; Origin of Electrical Contrast in Interfacial Phase Change Memory
- 12:15 6A.4 K. Konstantinos, F.C. Mocanu, S.R. Elliott, *Dept of Chemistry, Cambridge University, Cambridge, UK*, Gap States in Models of The Phase-Change Memory Material,  $\text{Ge}_2\text{Sb}_2\text{Te}_5$ , Simulated Using a Machine-Learned Inter-Atomic Potential.
- 12:30 Lunch**

## Session 7A: III-V Semiconductors

- 14:00 7A.1 S H Yoon, S.-H. Yoon, K. Kato, C. Yokoyama, M. Takenaka and S. Takagi, *Toyko University, Tokyo, Japan*, Re-Examination of Sulfur Treatment Effects on Al<sub>2</sub>O<sub>3</sub>/InGaAs MOS Interface Properties.
- 14:15 7A.2 M. Hellenbrand, O.-P. Kilpi, J. Svensson, E. Lind, and L.-E. Wernersson, *Lund University, Sweden*, Comparison of Low-Frequency Noise in Nanowire and Planar III-V MOSFETs.
- 14:30 7A.3 S. Takagi<sup>1</sup>, M. Ke<sup>1</sup>, D.-H Ahn<sup>1</sup>, T.-E. Lee<sup>1</sup>, S.-H. Yoon<sup>1</sup>, K. Kato<sup>1</sup>, K. Toprasertpong<sup>1</sup> and M. Takenaka<sup>1</sup>, (Invited) *Tokyo University, Tokyo, Japan*, MOS Interface Defect Control in Alternative Channel Materials.
- 15:00 7A.4 T.-E. Lee<sup>1</sup>, K. Kato<sup>1</sup>, M. Takenaka<sup>1</sup>, and S. Takagi<sup>1</sup>, *Toyko University, Japan*, Impact of Metal Gate Electrodes on Electrical Properties of Y<sub>2</sub>O<sub>3</sub> /Si<sub>0.78</sub>Ge<sub>0.22</sub> Gate Stacks.
- 15:15 7A.5 Siri Nittayakasetwat<sup>1</sup>, Takashi Hamaguchi<sup>1</sup>, and Koji Kita<sup>1</sup> *Tokyo University, Japan*. Experimentally Observed Temperature-Induced Changes in Interface Dipole Layer Strengths in high-*k* /SiO<sub>2</sub> and high-*k*/high-*k* Systems.

**15:30 Coffee Break**

## Session 8A: ALD and Solar Energy

- 16:00 8A.1 Harrison Sejoon Kim<sup>1</sup>, Akshay Sahota<sup>2</sup>, Jaidah Mohan<sup>1</sup>, Heber Hernandez-Arriaga<sup>1</sup>, Jiyoun Kim, *UT Dallas, Texas, USA*, Silver-based Reliable Ultra-steep Threshold Switching Selector for Cross-bar Array.
- 16:15 8A.2 M. S. Kavrik, E. Chagarov, and A. Kummel, *UC San Diego*, Low Defect Interfaces on SiGe by Imperfect ALD.
- 16:30 8A.3 PC McIntyre (Invited), *Stanford University, USA*. Liquid Electrolyte Contacts to Insulator-Semiconductor and Insulator-Metal Nanostructures: Probing and Programming Local Defect Behavior.
- 17:00 8A.4 R.A. Rodriguez-Davila<sup>1</sup>, R.A. Chapman<sup>1</sup>, P. Bolshakov<sup>1</sup>, M. Quevedo-Lopez<sup>1</sup>, and C.D. Young<sup>1</sup>, *UT Dallas, USA*. Impact of Al<sub>2</sub>O<sub>3</sub> Deposition Temperature on the Performance and Initial Instability of Nanocrystalline Zinc Oxide Thin Film Transistors.
- 17:15 8A.5 C. Ahles<sup>1</sup>, J. Choi<sup>1</sup>, K. Wong<sup>2</sup>, S. Nemani<sup>2</sup> and A. Kummel<sup>1</sup>, *UC San Diego, USA*, Selective Atomic Layer Deposition of TiO<sub>2</sub>.

17:30 End

## Room B

### Session 6B: GaN, GaOx

- 10:45 6B.1 Jung-Hee Lee, (*Invited*) National University, Daegu, S Korea, Characteristics of Nanowire-Based AlGa<sub>N</sub>/Ga<sub>N</sub> MOSFET With Top-Down Fabrication.
- 11:15 6B.2 I. Nifa<sup>1,2</sup>, C. Leroux<sup>1,2</sup>, A. Torres<sup>1,2</sup>, M. Charles<sup>1,2</sup>, G. Reibold<sup>1,2</sup>, G. Ghibaudo<sup>2</sup> and E. Bano<sup>2</sup>, <sup>1</sup>CEA, Grenoble, France; <sup>2</sup>Uni Grenoble Rhone Alpes, Grenoble, France, Characterization and Modelling of 2DEG Mobility in AlGa<sub>N</sub>/AlN/Ga<sub>N</sub> MIS-HEMT.
- 11:30 6B.3 Erika Maeda<sup>1,2</sup>, Toshihide Nabatame<sup>2</sup>, Kazuya Yuge<sup>1,2</sup>, Masafumi Hirose<sup>1,2</sup>, Mari Inoue<sup>2</sup>, Akihiko Ohi<sup>2</sup>, Naoki Ikeda<sup>2</sup>, Koji Shiozaki<sup>3</sup>, Hajime Kiyono, <sup>1</sup>Shiubaura Institute of Technology, Tokyo, Japan; <sup>2</sup>NIMS Tsukuba, Japan; <sup>3</sup>Nagoya University, Japan, Change of Characteristics for n-GaN MOS Capacitors With Hf-rich HfSiO<sub>x</sub> Gate Dielectrics by Various Post-Deposition Annealing.
- 11:45 6B.4 Mallem Siva Pratap Reddy<sup>1</sup>, Ki-Sik Im<sup>2</sup>, Jung-Hee Lee<sup>1</sup>, Raphaël Caulmilone<sup>3</sup>, Sorin Cristoloveanu<sup>4</sup>, <sup>1</sup> Kyungpook National University, Daegu, S Korea; <sup>2</sup>Advanced Material Research Center, Kumoh National Institute of Technology, Gumi 39177, South Korea; <sup>3</sup> SOITEC, Bernin, France, <sup>4</sup> Grenoble Polytechnic Institute, Grenoble 38016, France, Characteristics of Gate Leakage Current in GaN Nanowire Gate-All-Around FETs With and Without 2DEG Channel.
- 12:00 6B.5 M. Hirose<sup>1, 2</sup>, T. Nabatame<sup>2</sup>, E. Maeda<sup>1, 2</sup>, K. Yuge<sup>1, 2</sup>, A. Ohi<sup>2</sup>, N. Ikeda<sup>2</sup>, Y. Irokawa<sup>2</sup>, H. Iwai<sup>2</sup>, H. Yasufuku<sup>2</sup>, S. Kawada<sup>2</sup>, Y. Koide<sup>2</sup>, H. Kiyono<sup>1</sup>, <sup>1</sup>Shiubaura Institute of Technology, Tokyo, Japan; <sup>2</sup>NIMS, Tsukuba, Japan, Influence of Post-Deposition Annealing on Electrical Characteristics of Pt/Al<sub>2</sub>O<sub>3</sub>/β-Ga<sub>2</sub>O<sub>3</sub> MOS Capacitors.
- 12:15 6B.6 Hong-Ping Ma<sup>1</sup>, Jia-He Yang<sup>1</sup>, Xiao-Xi Li<sup>1</sup>, Pei-Hong Cheng <sup>2</sup>, Hong-Liang Lu<sup>\*,1</sup>, and David Wei Zhang<sup>1</sup>, <sup>1</sup>Fudan University, Shanghai, China, One-step Control Growth of Thin GaON Film with Excellent Optical and Electrical Properties by Plasma Enhanced Atomic Layer Deposition.

12:30 Lunch

## Session 7B: Theory, Defects

- 14:00 7B.1 A Pasquarello, (Invited) *EPFL, Lausanne, Switzerland*, Study of Point Defects in Disordered Interfacial Layers through Ab-Initio Molecular Dynamics.
- 14:30 7B.2 A. Stesmans<sup>1</sup>, B. Schoenaers<sup>1</sup>, A. Leonhardt<sup>2</sup>, D. Chiappe<sup>2</sup>, I. Asselberghs<sup>2</sup>, C. Huyghebaert<sup>2</sup>, I. Radu<sup>2</sup>, S. DeGendt<sup>2</sup>, M. Houssa<sup>1</sup>, V. V. Afanas'ev<sup>1</sup>, <sup>1</sup> *Physics Dept, KU Leuven, Belgium*, <sup>2</sup> *IMEC Belgium*, Electron Spin Resonance Analysis of Transferred MoS<sub>2</sub> Layers Grown by MOCVD.
- 14:45 7B.3 Z. Chai (1), W. Zhang (1)\*, R. Degraeve (2), J. F. Zhang(1), J. Marsland(1), A. Fantini(2), D. Garbin(2), S. Clima(2), L. Goux(2), G. S. Kar(2), *Liverpool John Moores University, UK*, RTN in Ge<sub>x</sub>Se<sub>1-x</sub> OTS Selector Devices.
- 15:00 7B.4 S. Clima<sup>1</sup>, D. Garbin<sup>1</sup>, W. Devulder<sup>1</sup>, J. Keukelier<sup>2</sup>, K. Opsomer<sup>1</sup>, L. Goux<sup>1</sup>, G. S. Kar<sup>1</sup>, G. ourtois<sup>1,3</sup> (Invited) *IMEC, Leuven, Belgium*, Material Relaxation in Chalcogenide OTS SELECTOR Materials.
- 15:30 Coffee Break**

## Session 8B: Theory II

- 16:00 8B.1 A Shluger, (Invited) *University College London, UK*, "Mechanisms of Charging and Degradation of Amorphous Oxide Films.
- 16:30 8B.2 V.V. Afanas'ev<sup>1</sup>, J. Schubert<sup>2</sup>, A. Neft<sup>2</sup>, G. Delie<sup>1</sup>, I. Shlyakhov<sup>1</sup>, V. Trepalin<sup>1</sup>, M. Houssa<sup>1</sup>, A. Stesmans<sup>1</sup>, *KU Leuven, Belgium; Forschungszentrum Jülich, 52425 Jülich, Germany*, Determination of Energy Thresholds of Electron Excitations at Semiconductor /Insulator Interfaces Using Trap-Related Displacement Currents.
- 16:45 8B.3 L. Luo<sup>1,2</sup>, S. Mei<sup>1</sup>, K. Shubhakar<sup>1</sup>, N. Raghavan<sup>1</sup>, F. Zhang<sup>2</sup>, and K.L. Pey<sup>1</sup>, <sup>1</sup>*Singapore University of Technology and Design, Singapore*; <sup>2</sup>*Globalfoundries Singapore. Ltd., Singapore 738406*, 3D Characterization of Hard Breakdown in RRAM Device.
- 17:00 8B.4 Yuanshuang Liu<sup>1</sup>, Dameng Liu<sup>1</sup>, Yuzheng Guo<sup>2</sup>, <sup>1</sup>*Tsinghua University, Beijing, China*; <sup>2</sup>*Swansea University, UK*, Intrinsic Defects Properties of Few-Layer Arsenic and

Antimony.

17:15 8B.5 F. Driussi<sup>1</sup>, S. Venica<sup>1</sup>, A. Gahoi<sup>2</sup>, A. Gambi<sup>1</sup>, P. Giannozzi<sup>1</sup>, S. Kataria<sup>2</sup>, M.C. Lemme<sup>2,3</sup>, P. Palestri<sup>1</sup>, D. Esseni<sup>1</sup>, <sup>1</sup>*University of Studi Udine, Italy*; <sup>2</sup>*Aachen Germany*; *AMO Aachen, Germany*, Improved Understanding of Metal-Graphene Contacts.

**17:30 End**

**19:00 Conference Dinner**

**19:00 Drinks on Arrival – Scholars Garden**

**19:30 Dinner – Main Hall**

Wednesday 3 July 2019

### Session 9: Atomic Layer Deposition and Etching

- 9:00 9.1 P Chalker (Invited), *Liverpool University, UK*. Atomic-layer Engineering of Ultrathin Dielectric Films.
- 9:30 9.2 C Hinkle (Invited), *University of Notre Dame, IN, USA*, Vertical Integration Through Direct Growth of van der Waals Materials.
- 10:00 Coffee Break**

### Session 10A: 2D, Memory and Dielectric Materials

- 10:03 10A.1 E. Caruso<sup>1\*</sup>, J. Lin<sup>1</sup>, S. Monaghan<sup>1</sup>, K. Cherkaoui<sup>1</sup>, F. Gity<sup>1</sup>, P. Palestri<sup>2</sup>, D. Esseni<sup>2</sup>, L. Selmi<sup>3</sup>, P. K. Hurley<sup>1</sup> *Tyndall Institute, Cork, Ireland*, Investigating Electrically Active Defect Distributions in MOS Structures Based on Inelastic Tunneling Interaction with Border Traps and a Nonlocal Model for Interface Traps.
- 10:45 10A.2 Andrea Redaelli, *Micron Semiconductor, Italy*, Recent trends in semiconductor memories (Invited)
- 11:15 10A.3 E. Pérez<sup>1</sup>, D. Maldonado<sup>2</sup>, C. Acal<sup>3</sup>, J.E. Ruiz-Castro<sup>3</sup>, F.J. Alonso<sup>3</sup>, A.M. Aguilera<sup>3</sup>, F. Jiménez-Molinos<sup>2</sup>, Ch. Wenger<sup>1</sup>, J.B. Roldán<sup>2</sup>, IHP, *University of Granada, Spain*, Analysis of the Statistics of Device-to-Device and Cycle-to-Cycle Variability in TiN/Ti/Al:HfO<sub>2</sub>/TiN RRAMs.
- 11:30 10A.4 Viktoria Ritter<sup>1</sup>, Jakob Genser<sup>1</sup>, Daniele Nazzari<sup>1</sup>, Ole Bethge<sup>2</sup>, Emmerich Bertagnolli<sup>1</sup>, and Alois Lugstein<sup>1</sup>, <sup>1</sup>*TU Wien, Vienna, Austria*; <sup>2</sup>*Infineon Austria, Villach*; Silicene Passivation by Few-Layer Graphene.
- 11:45 10A.5 A. Mazurak, J. Jasiński, B. Majkusiak, *Warsaw University of Technology, Warsaw, Poland*, Effect of Traps-to-Gate Tunnel Communication on C-V Characteristics of MIS Capacitors.
- 12.00 10A.6 Y. X. Fang<sup>1,2,3</sup>, C. Zhao<sup>1,2,3</sup>, \*, C. Z. Zhao<sup>1,2,3</sup>, \*, I. Z. Mitrovic<sup>2</sup>, L. Yang<sup>4</sup>, W. Y. Xu<sup>5</sup>, *Liverpool University, UK, Xian Jiaotong University, Xian, China*, Bias-Stress Stability and Radiation Response of Solution-Processed AlO<sub>x</sub> Dielectrics Investigated by On-Site Measurements.
- 12.15 10A.7 L.A.H. Jones<sup>1</sup>, P. Das<sup>2</sup>, T.P. Manzanera<sup>1</sup>, J.T. Gibbon<sup>1</sup>, R. Potter<sup>1</sup>, P.R. Chalker<sup>1</sup>, R. Mahapatra<sup>2</sup>, V.R. Dhanak<sup>1</sup>, I.Z. Mitrovic<sup>1</sup>,\* *Liverpool University, National Institute*

of Technology Durgapur, India, Atomic Layer Deposited TiO<sub>2</sub>/Al<sub>2</sub>O<sub>3</sub> Nanolaminates on GaN

## Session 10B Modelling and Dielectrics

- 10.30 10B.1 T. Nakanishi<sup>1</sup>, K. Chokawa<sup>1</sup>, M.Araidai<sup>1,2</sup>, T.Nakayama<sup>3</sup>, K.Shiraishi<sup>1,2</sup>,  
*1,2Graduate School of Engineering, Nagoya University, Japan; 3 Chiba University, Japan*; Theoretical Studies on the Switching Mechanism of VMCO Memories.
- 10.45 10B.2 J Strand, A Shluger, *Dept of Physics, Imperial College London, UK*, Charging Behavior of Point Defects in hexagonal Boron Nitride
- 11:00 10B.3 H Lu, Y Guo, J Robertson, *Cambridge University, UK*. MIGS Gap State Passivation and Fermi Level De-pinning for Solar Cell Contacts.
- 11:15 10B.4 J Kang, *Peking University, Beijing, China*. Hardware Implementation of RRAM based Binarized Neural Networks (Invited)
- 11.45 10B.5 H Li <sup>1</sup>, J Robertson <sup>2</sup>, *1 Tsinghua University, Beijing, China, 2 J Robertson, Cambridge University, UK*, Non-linear Conduction Mechanism and Materials Selection in Chalcogenide Selector Devices.
- 12.00 10B.6 S J Clark, *Durham University, UK*, Metal insulator transition in VO<sub>2</sub> and its role in devices
- 12.15 10B.7 Guofang Zhong, Guandong Bai, Kham Niang\*, John Robertson, *Engineering Dept, Cambridge University, UK*, Preparation of VO<sub>2</sub> Films by ALD Using TEMAV as the Vanadium Precursor.
- 12:30 Break**
- 12:40 Student Prize Giving**
- 12:50 Closing / Next INFOS Conference**
- 13:00 Lunch**

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## POSTER PROGRAM

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- P1 Luis Felipe de Oliveira Bergamim<sup>1</sup>, Wilson Henrique Veneziano<sup>2</sup> and Maria Glória Caño de Andrade<sup>1</sup>, *1Sao Paulo State University, Sorocaba, Brazil, 2 University of Brasilia, Brasilia, Brazil*, Impact of Trap Position in Ultra-Thin Body and Buried Oxide SOI Devices.
- P2 Guofang Zhong, Guandong Bai, Kham Niang, John Robertson, *Engineering Dept, Cambridge University, UK*, Preparation of VO<sub>2</sub> Films by ALD Using TEMAV as the Vanadium Precursor.
- P3 Guan-Ting Liu, Kuei-Shu Chang-Liao, Dun-Bao Ruan, Ji-Syuan Li, Shih-Han Yi, Zi-Qin Hong, Po-Chen Chiu, Yan-Lin Li, *Dept of Engineering, National Tsinghua University, Hsinchu, Taiwan*, Enhanced Electrical and Reliability Characteristics of Ge pMOSFETs by Fluorine Followed with Oxygen and Nitrogen Plasma Treatment.
- P4 Po-Chen Chiu, Kuei-Shu Chang-Liao, Dun-Bao Ruan, Shih-Han Yi, Zi-Qin Hong, Guan-Ting Liu, Yan-Lin Li, *Dept of Engineering, National Tsinghua University, Hsinchu, Taiwan*, Effects of Nitrogen Content in Interfacial Layer on Ge n-MOSFET.
- P5 Zi-Qin Hong, Kuei-Shu Chang-Liao, Dun-Bao Ruan, Shih-Han Yi, Po-Chen Chiu, Guan-Ting Liu, and Yan-Lin Li, *Dept of Engineering, National Tsinghua University, Hsinchu, Taiwan*, Radiation Effects and Reliability Characteristics of Ge pMOSFETs.
- P6 G. González-Cordero<sup>1</sup>, M.B. González<sup>2</sup>, F. Campabadal<sup>2</sup>, F. Jiménez-Molinos<sup>1</sup>, J.B. Roldán<sup>1</sup>, *Dept of Electronics, University of Granada, Spain, Institute of Electronics; Barcelona, IMB-CNM, UAB, Spain*, A new technique to analyze RTN Signals in Resistive Memories.
- P7 J. Chen, Z. Zhang, Y. Guo and J. Robertson, *Dept of Engineering, Cambridge University, UK*, Schottky Barrier Height at Metal-ZnO (110) Non-Polar Interface.
- P8 S. Dueñas, H. Castán, O. G. Ossorio, H. García, *Dept of Electronics, Valladolid, Spain*, Dynamics of Set and Reset Processes on Resistive Switching Memories.
- P9 H. García, O. G. Ossorio, S. Dueñas, and H. Castán, *Dept of Electronics, Valladolid, Spain*, Controlling the intermediate Conductance States in RRAM Devices for Synaptic Applications.
- P10 A. Gismatulin<sup>1</sup>, V.A. Gritsenko<sup>1,2,3</sup>, V.A. Voronkovskii<sup>1</sup>, *1 Rzhanov Institute of*

*Semiconductor Physics, 630090 Novosibirisk, Russia, 2 Novosibirisk State University, Novosibirisk, Russia, Charge Transport Mechanism of a SiO<sub>x</sub>-Based Memristor in Various Resistance States.*

- P11 V.A. Gritsenko<sup>1,2,3</sup>, A.A. Gismatulin<sup>1</sup>, *Rzhanov Institute of Semiconductor Physics, Novosibirisk, Russia; Novosibirisk State University, Novosibirisk, Russia Novosibirisk, Russia, Charge Transport Mechanism of Lanthanum-Doped HfO<sub>2</sub>.*
- P12 Yiheng Yin<sup>1</sup>, Chen Shao<sup>1,2</sup>, Yigang He<sup>1</sup>, Can Zhang<sup>1</sup>, Yuzheng Guo<sup>1</sup>, *School of Electrical Engineering, Wuhan, China, Anisotropic Transportation Properties of Monolayer Antimony.*
- P13 Zhen Wang<sup>1</sup>, Can Zhang<sup>1</sup>, Yigang He<sup>1</sup>, Yuzheng Guo<sup>1,2</sup>, Chen Shao<sup>1,2</sup>, *School of Electrical Engineering, Wuhan, China, Nitrogen Passivation at SiO<sub>2</sub>/4H-SiC(0001) Interface.*
- P14 Wenduo Chen<sup>1</sup>, Huanglong Li<sup>2\*</sup>,<sup>1</sup> *School of Materials Science and Engineering, 2 Dept of Precision Instruments, Tsinghua University, Beijing, China, Native Filament-to-Dielectric Band Alignment in Phase Change Superlattice Memories.*
- P15 Dong-Seok Kim<sup>1</sup>, Jun-Hyeok Lee<sup>2</sup>, and Jung-Hee Lee<sup>2</sup>, *Korea Atomic Energy Research Institute, Gyeongju 38180, Republic of Korea; School of Electronic Engineering, Kyungpook National University, Daegu, Korea, Proton-induced Degradation Characteristics of AlGa<sub>N</sub>/Ga<sub>N</sub> HEMTs with Different Irradiation Energies.*
- P16 A C. Kummel<sup>1</sup>, E. Chagarov<sup>1</sup>, M. Kavrik<sup>1</sup>, M.B. Katz<sup>2</sup>, N. A. Sanford<sup>2</sup>, A. Davydov<sup>2</sup>, M. H. Lee<sup>3</sup> *UC San Diego, CA, USA; NTNU, Taipei, Taiwan, Surface Free Energy and Interface Strain in HfO<sub>2</sub> and HfZrO<sub>2</sub> Ferroelectric Formation.*
- P17 Ki-Sik Im<sup>1</sup>, Jinseok Choi<sup>2</sup>, Youngmin Hwang<sup>1</sup>, Jea-Seung Roh<sup>2</sup>, Seung-Hyeon Kang<sup>3</sup>, and Jung-Hee Lee<sup>3</sup>, *Kumoh National Institute of Technology, Gumi, Korea; Kyungpook National University, Daegu 41566, Korea, 1/f Noise Characteristics of AlGa<sub>N</sub>/Ga<sub>N</sub> HEMTs with Carbon-doped Buffer Layer.*
- P18 Dali Cheng<sup>1</sup>, Huanglong Li<sup>2</sup>, *Dept of Precision Instruments, Tsinghua University, Beijing, China, Metal-oxide on Titanium-Based Halide Double Perovskite for Optoelectronic Applications.*
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