2015 International Symposium on Next-Generation Electronics

(ISNE 2015)

Taipei, Taiwan
4-6 May 2015
The 4th International Symposium on Next-Generation Electronics (IEEE ISNE 2015)

Advanced Program

Monday May 4, 2015

13:30 - 13:40

Opening Ceremony I
Room: IB101
Chairs:
Ching-Jong Liao (Honorary Chair, President of NTUST, Taiwan)
Poki Chen (Organizing Committee Chair, ISNE 2015)

13:40 - 15:20

Keynote Speech 1
Room: IB101
Presider: San-Liang Lee (General Chair, ISNE 2015)

EUVL, the future lithographic technology for semiconductor fabrication....N/A
Dr. Alek C. Chen, Asia ASML

Keynote Speech 2
Presider: Shien-Kuei Liaw (TPC Chair, ISNE 2015)

Detection of Single Traps and Characterization of Individual Traps: Beginning of “Atomistic Reliability Physics”....N/A
Prof. Toshiaki Tsuchiya, Shimane University, Japan

15:20 - 15:45

Coffee Break
IB 1F

15:40 - 17:40

T1-1 Green Photonics I

Session Chairs:
Sheng-Lung Huang (National Taiwan University, Taiwan),
Byoungho Lee (Seoul National University, Korea)
The 4th International Symposium on Next-Generation Electronics (IEEE ISNE 2015)

Room: IB101

Broadband Tunable Laser and High-Brightness Light Sources (Invited Talk)....1
Dong-Yo Jheng, Shih-Chang Wang, Tuan-Shu Ho, Teng-I Yang, Kuang-Yu Hsu, and Sheng-Lung Huang (National Taiwan University, Taiwan)

Plasmonic beam manipulation and vortex control methods (Invited Talk)
Byoungho Lee (Seoul National University, Korea)

Yen Yu Chen, Jinn Kong Sheu, Wei Chi Lai (National Cheng Kung University, Taiwan), and Ming Lun Lee (Southern Taiwan University of Science and Technology, Taiwan)

Enhancement on Photovoltaic Properties by Inserting a Lowly Boron-doped Gradient Si-rich Oxide Multilayer in Si Quantum Dot Thin Film
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Chang Hong Lin (National Taiwan University of Science and Technology, Taiwan)

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T4-1 Electronic Devices I

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Teruo Suzuki (Socionext Inc., Japan)
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Welcome Reception
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**Tuesday May 5, 2015**

**09:00 - 09:10**

Opening Ceremony II  
**Room:** IB101  
**Chair:** Shien-Kuei Liaw (TPC Chair, ISNE 2015)

**09:10 - 10:00**

Keynote Speech 3  
**Room:** IB101  
**Presider:** Bohr-Ran Huang (National Taiwan University of Science and Technology, Taiwan)  
**Title:** The Art and Science for Packaging High-Coupling Photonics Devices and Modules  
**Speaker:** Prof. Wood-Hi Cheng, National Chung-Hsing University, Taiwan

**10:00 - 10:20**

Coffee Break  
**Location:** IB 1F

**10:20 - 12:00**

Keynote Speech 4&5  
**Room:** IB101  
**Presider:** Liang-Chiun Chao (National Taiwan University of Science and Technology, Taiwan)  
**Title:** Prospect and Outlook of Electrostatic Discharge (ESD) Protection in Emerging Technologies  
**Speaker:** Prof. Juin J. Liou, UCF, USA  
**Title:** Next Generation Blood Test Electronics for Home-Based Health Care  
**Speaker:** Prof. Fu-Liang Yang, Academia Sinica, Taiwan

**12:00 – 13:15**

Lunch (Room 201, 202, 301)

**13:15 - 15:15**

SPC-1 Students Paper Contest-1  
**Room:** IB101  
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Pinghui S. Yeh (National Taiwan University of Science and Technology, Taiwan)
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Tzu-Chiao Wei, Dung-Sheng Tsai, Jr-Jian Ke, Meng-Lin Tsai, Der-Hsien Lien (National Taiwan University, Taiwan), Parvaneh Ravadgar (National Cheng Kung University, Taiwan), Chiung-Yi Huang, Ray-Hua Horng (National Chung Hsing University, Taiwan), and Jr-Hau He (King Abdullah University of Science & Technology, Saudi Arabia)

Analytical Studies of GaN-based LEDs Grown on Patterned Sapphire, Silicon and GaN Substrates....N/A
Hao-Chung Kuo, An-Jye Tzou, Dan-Hua Hsieh, Chia-Yu Lee, Chyong-Hua Chen, Chun-Yen Chang (National Chiao Tung University, Taiwan), and Zen-Yu Li (Academia Sinica, Taiwan)

SPC-2 Students Paper Contest-2
Room: IB201

Session Chairs and Reviewers:
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Room: IB202
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Poster Session I
Zone B, IB 1F

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PT-06: Comparison of Space Vector PWM and Carrier-based PWM under Multi-phase Setting....N/A
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PT-07: Resistive Switching Characteristics of Sol-Gel Strontium TitanateNickelate Thin Films for Flexible Nonvolatile Memory Applications....N/A
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PT-08: An Optical Index Sensor by Using a Etched-Slanted Fiber Bragg Grating....N/A
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PT-09: AlGaN-based Metal-Semiconductor-Metal Ultra-Violet Photodetectors with AlN/SiN Multiple Nucleation Layers....N/A
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PT-20: Ultra-Short Length of Couplers Padded with Gold Thin Films....N/A
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PT-45: Reducing the Threshold Pumping Density of the Random Lasing in Hollow Optical Fibers Infiltrated with Dye-doped Liquid Crystals by Using Ag Nanoparticles....N/A
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PT-46: Ultra-compact Polarization Rotator by Using an L-shaped Asymmetric Hybrid Plasmonic Waveguide....N/A
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**15:15 – 15:45**
Coffee Break
IB 1F

**15:45 - 17:45**

**T2-1 Microelectronic Circuits and Systems I**
Room: IB101
Session Chairs:
Jinwook Burm (Seoul National University, Korea)
Kiat Seng Yeo (Singapore University of Technology and Design, Singapore)

*Single Photon Detection Technology for PET applications (Invited Talk)*...N/A
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Yiming Li (National Chiao Tung University, Taiwan)

*Intrinsic Unipolar SiO$_x$-Based Resistive Switching Memory: Characterization, Mechanism and Applications (Invited Talk)*. N/A
Yao-Feng Chang (The University of Texas at Austin, USA)

*Modeling and Simulation of Well-Ordered Ge/Si-Nanodisk Array for Quantum Dot Solar Cells (Invited Talk)*. N/A
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Tz-Shiuian Peng (Chung-Shan Institute of Science and Technology, Taiwan)

*Efficient light harvesting and applications of nanostructures in green photonic devices (Invited Talk)*. N/A
Pei-Kuen Wei (Academia Sinica, Taiwan)

*Recent radiation hardening researches for optical fiber sensing and communications in Taiwan (Invited Talk)*. N/A
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Wen-Fung Liu (Feng Chia University, Taiwan)
Yin-Wen Lee (National Taipei University of Technology, Taiwan)

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Room: IB101

18:30 – 20:45
Banquet
14F, Howard International House
Address: No. 30, Sec. 3, Shin-Sheng South Road, Taipei, 106, Taiwan
Wednesday May 6, 2015

08:30 - 10:00

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Hung-chun Chang (National Taiwan University, Taiwan)

**Numerical Modeling on Plasmonic Waveguides (Invited Talk)....N/A**
Hung-chun Chang, and Hsuan-Hao Liu (National Taiwan University, Taiwan)

**Fundamental and Second-Order Modes of THz Photonic Crystal fiber....N/A**
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**Simulation and Application of Second Order Fiber Bragg Gratings (Invited Talk)....N/A**
Nai-Hsiang Sun and Chia-Ming Hu (I-Shou University, Taiwan)

**Numerical Analysis of Photonic Crystal fiber Sensor....N/A**
Jung-Sheng Chiang, Yong-Hang Wu, Syuan-Yu Jhang, Nai-Hsiang Sun and Shih-Chiang Lin (I-Shou University, Taiwan)

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Yu-An Chen, Hsu-Chih Cheng, and Yan-Feng Liu (National Formosa University, Taiwan)

**PW-05: Application of notched long-period fiber grating based sensor for CO2 gas sensing**

Chia-Chin Chiang, and Janw-Wei Wu (National Kaohsiung University of Applied Sciences, Taiwan)

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Hsi-Hsir Chou (National Taiwan University of Science and Technology, Taiwan), Fan Zhang (Cambridge University, England)

**PW-07: Photocatalytic Study of Silver and Bismuth Codoped Zinc Oxide by Spray Pyrolysis**

Tzu-Yang Lin, Wei-Hsuan Hsu, Chun-Yi Lee, Yu-Xuan Ding, Sheng-Chung Huang, Wen-How Lan (National University of Kaohsiung, Taiwan), and Mu-Chun Wang (Minghsin University of Science and Technology, Taiwan)

**PW-08: High performance Thin-Film Flip-Chip Light Emitting Diodes with ACA technology**

Feng Jeng Gwo (Chang Gung University, Taiwan), Chia-Yu Lee, and Yu-Pin Lan (National Chiao Tung University, Taiwan), Ray-Ming Lin, and Chiang-Pin Chen (Chang Gung University, Taiwan)

**PW-09: Proportion-Aware IP over Hierarchical WDM Ring Networks**

Jih-Hsin Ho (Taiwan Shoufu University, Taiwan)

**PW-10: Wavelength Dependence of Trapping Efficiency in Optical Tweezers**

Shih-Kun Liu, Wen-Kai Hsieh, Wei-Yi Sung, Yong-Jai Shen, Chia-Ching Tsai, and Fong-Min Hsu (National Kaohsiung University of Applied Sciences, Taiwan)

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Ming-An Hu, Min-Jyun Huang and Liang-Chiun Chaoa (National Taiwan University of Science and Technology, Taiwan)

**PW-12: Electrical Study of Indium Doped Magnesium Zinc Oxide by Spray Pyrolysis**

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Tain-Lieng Kao (I-Shou University, Taiwan), Chia-Hung Ma (National University of Kaohsiung, Taiwan)

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**PW-27: Design of an Optical Flow Switch Based on LCoS Technologies**. Yhi Shiau, Yuh-Jiuh Cheng, and Shu-Ying Cheng (Chunghwa Telecom Co., Ltd., Taiwan)

**PW-28: Faraday Rotated Mirror Integrated Saturable Absorber Tunable Fiber Laser with Single-Longitudinal-Mode Operation**. Wun-Hao Siao, and Shien-Kuei Liaw (National Taiwan University of Science and Technology, Taiwan)

**PW-29: Low Phase Noise Varactor-Switched Left-Handed Resonator Voltage-Controlled Oscillator**. Heng-Fa Teng (Nan Kai University of Technology, Taiwan), Sheng-Lyang Jang, Wei-Chun Hung, and Ching-Wen Hsue (National Taiwan University of Science and Technology, Taiwan)

**PW-30: Experimental Study of a Portable FLCOS Projector with Visible Light Communication (VLC) Technology**. Hsi-Hsir Chou, Shien-Kuei Liaw, Ming-Jen Chien, Chun-Jui Wu, and Chiang Teng (National Taiwan University of Science and Technology, Taiwan)

**PW-31: Engineered Threshold Voltage in Algan/Gan Hemts for Normally-Off Operation**. Jung-Ruey Tsai, Yi-Sheng Chang, and Kuo-Shu Wei (Asia University, Taiwan), Ting-Ting Wen (National Chiao Tung University, Taiwan)

**PW-32: Improve Efficiency by Surface Treatment of Top-emission Flexible Polymer Light-emitting Diode**. Ming-Lung Tu (Fortune Institute of Technology, Taiwan), Yan-Kuin Su (National Cheng Kung University, Taiwan), Ruei-Tang Chen (Southern Taiwan University of Science and Technology, Taiwan), Shin-Her Yu (National Formosa University, Taiwan)

**PW-33: Forming-free resistive switching characteristics of Pt/(HfCuAlTi)Ox/Pt for next-generation nonvolatile memory applications**. Ting-Yu Wang, J. P. Chu, and Wayhu Diyatmika (National Taiwan University of Science and Technology, Taiwan), S. F. Wang (National Taipei University of Technology, Taiwan)

**PW-34: The integration process of W-plug landing on Cu line in 28nm-node flash memory and beyond**. Wei-Lin Wang, Yi-Wen Lu, Pei-Chia Chen, Chun-Chi Lai, Hung-Ju Chien, and Hsien-Chang Kou (Powerchip Technology Corporation, Taiwan)

**PW-35: Debye Behavior Analysis of InGaN/GaNMultiquantum-well Heterostructures**. Ya-Fen Wu (Ming Chi University of Technology, Taiwan), Jiunn-Chyi Lee (Taipei Chengshih University of Technology, Taiwan), Jui-Ju Hsiao, and Tzer-En Nee (Chang Gung University, Taiwan)

**PW-36: A Crossbar-Based Controller Design for Flash Memory**. Yun-Chi Lee, and Chin-Hsien Wu (National Taiwan University of Science and Technology, Taiwan)
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PW-47: A New Quasi-2D Interface-Trapped-Charge-Degraded Subthreshold Current Model for Junctionless Surrounding-Gate (JLSRG) MOSFETS....N/A
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HS-1 Semiconductor and Thin Film Technologies
Room: IB201
Session Chairs:
Cheng-Chung Lee (National Central University, Taiwan)
Uraoka Yukiharu (Nara Institute of Science and Technology, Japan)

Uraoka Yukiharu (Nara Institute of Science and Technology, Japan)

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Ray-Hua Horng (National Chung Hsing University, Taiwan)

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The 4th International Symposium on Next-Generation Electronics (IEEE ISNE 2015)

HS-3 Electronic Devices and Transmission System
Room: IB101
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Room: IB101
Chair: Jian-Jang Huang (National Taiwan University, Taiwan)

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Chair: Shien-Kuei Liaw (National Taiwan University of Science and Technology, Taiwan)

Development of portable SPR sensor using organic light source for biochemicals detection (Invited Talk)....N/A
Kou-Chen Liu (Chang Gung University, Taiwan)

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Free city tour to National Palace Museum for foreign participants only
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