

2015 International Symposium on Next-Generation Electronics

(ISNE 2015)

**Taipei, Taiwan
4-6 May 2015**



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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),

Byoung-ho Lee (Seoul National University, Korea)

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)

Byoung-ho Lee (Seoul National University, Korea)

Water Splitting Using Gallium Nitride Based Working Electrodes for Hydrogen Generation with Bias by Solar Cells

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

Yu-Chieh Lin, Jia-Ruei Chang, You-Jeng Chen, Pin-Ruei Huang, Kuang-Yang Kuo, and Po-Tsung Lee (National Chiao Tung University, Taiwan)

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Session Chairs:

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Chang Hong Lin (National Taiwan University of Science and Technology, Taiwan)

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Cheng-Hsiung Yang and Yuan-Long Wu (National Taiwan University of Science and Technology, Taiwan)

T4-1 Electronic Devices I

Session Chairs:

Siegfried Selberherr (TU Wien, Austria),

Teruo Suzuki (Socionext Inc., Japan)

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Yi-Jen Chiu (National Sun Yet-Sen University, Taiwan)

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18:00 – 20:00

Welcome Reception

12F, International Building, National Taiwan University of Science and Technology

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)

The Art and Science for Packaging High-Coupling Photonics Devices and Modules....N/A

Prof. Wood-Hi Cheng, National Chung-Hsing University, Taiwan

10:00 - 10:20

Coffee Break

IB 1F

10:20 - 12:00

Keynote Speech 4&5

Room: IB101

Presider: Liang-Chiun Chao (National Taiwan University of Science and Technology, Taiwan)

Prospect and Outlook of Electrostatic Discharge (ESD) Protection in Emerging Technologies....N/A

Prof. Juin J. Liou, UCF, USA

Presider: Ren-Young Liu (Senior Research Fellow, NARLabs, Taiwan)

Next Generation Blood Test Electronics for Home-Based Health Care....N/A

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

Session Chairs and Reviewers:

Jinn-Kong Sheu (National Cheng Kung University, Taiwan)

Pinghui S. Yeh (National Taiwan University of Science and Technology, Taiwan)

The Optical Influence of InN Dot-Like Mixed with InGaN on Nitride-Based Substrate....N/A

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See-Through Ga₂O₃ Solar-Blind Photodetectors for Use in Harsh Environments....N/A

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:

Yi-Jan Chen (National Taiwan University, Taiwan)

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Pranata Sanjaya, Poki Chen, Rella Mareta, and Fajar Budiman (National Taiwan University of Science and Technology, Taiwan)

Impact-Based Area Allocation for Yield Optimization in Integrated Circuit....N/A

Billion Abraham, Arif Widodo, and Poki Chen (National Taiwan University of Science and Technology, Taiwan)

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Mochamad Januar, and Kou-Chen Liu (Chang Gung University, Taiwan)

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Ya-Yun Hsiao, Yi-Su Chung, Poki Chen, Wei-Xiang Tsai, and Jhih-Min Lin (National Taiwan University of Science and Technology, Taiwan)

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Room: IB202

Session Chairs and Reviewers:

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Session Chairs and Reviewers:

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Jheng-Rong Li, Nai-Hsiang Sun, Kai-Yang Huang, Wen-Chi Chao, Jung-Sheng Chiang (I-Shou University, Taiwan), and Jiun-Jie Liao (National Taiwan University, Taiwan)

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14:30 - 17:00

Poster Session I

Zone B, IB 1F

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Yi-Lin Yu, (National Taiwan University of Science and Technology, Taiwan)

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PT-08: An Optical Index Sensor by Using a Etched-Slanted Fiber Bragg Grating....N/A

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Chin-Hsiang Chen (Cheng Shiu University, Taiwan)

PT-10: Improved Efficiency of Dye Sensitized Solar Cells with a Thin HfO₂ Barrier Layers....N/A

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Bo-Ying Wu, Jun Yan Guo, and Kai-Yuen Lam (I-Shou University, Taiwan)

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

Chin-Ping Yu, and Yi-Ping Huang (National Sun Yet-sen University, Taiwan)

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Siang-You Fang, Yen-Sheng Lin, and Cheng-Wei Chen (I-Shou University, Taiwan)

PT-50: High sensitivity in-line strain sensor based on abrupt-tapered fiber Mach-Zehnder interferometers....N/A

Jhih-He Jhang, Yu-Lin Tseng, Wen-Chuan Lin and Nan-Kuang Chen (National United University, Taiwan), and Shien-Kuei Liaw (National Taiwan University of Science and Technology, Taiwan)

PT-51: Tunable fundamental-mode cutoff wavelength in fiber short-pass filter for strain sensing applications....N/A

Jhih-He Jhang, Yu-Lin Tseng and Nan-Kuang Chen (National United University, Taiwan), and Shien-Kuei Liaw (National Taiwan University of Science and Technology, Taiwan)

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

Jinwook Burm (Seoul National University, Korea)

Transformer-Based Class-E CMOS Power Amplifiers (Invited Talk)....N/A

Kiat Seng Yeo (Singapore University of Technology and Design, Singapore)

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T4-2 Electronic Devices II

Room: IB201

Session Chairs:

Yao-Feng Chang (The University of Texas at Austin, USA)

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

Yiming Li (National Chiao Tung University, Taiwan)

CoW Alloy as Multi-function Diffusion Barrier Material for Next-generation Cu Metallization....199

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Chuanchuan Sun, Renrong Liang, Libin Liu, Jing Wang, and Jun Xu (Tsinghua National Laboratory for Information Science and Technology, China)

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Wen-Ping Chiang, Chih-Chi Chen, Chun Wang, Min-Yu Yang, Ko-Chia Liao, Hsin-Mei Wang and Fu-Chien Chiu (Ming Chuan University, Taiwan)

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T5-2 Optoelectronic and Semiconductor Technologies II

Room: IB202

Session Chairs:

Pei-Kuen Wei (Academia Sinica, Taiwan)

Tz-Shiuan 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

Tz-Shiuan Peng (Chung-Shan Institute of Science and Technology, Taiwan), and Ren-Young Liu (Senior Research Fellow, NARLabs, Taiwan)

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Directional Micro-Displacement Sensor base on a Tapered Fiber Connected to a D-Shaped Fiber....N/A

Yu-Jie Xiao, Chia-Chi Yeh and Cheng-Ling Lee (National United University, Taiwan)

T6-1 Electrical Engineering and Photonic Devices I

Room: IB301

Session Chairs:

Wen-Fung Liu (Feng Chia University, Taiwan)

Yin-Wen Lee (National Taipei University of Technology, Taiwan)

Plasmonic Optical Binding Forces of Gold or Silver Dimer (Invited Talk)....N/A

Jiunn-Woei Liaw (Chang Gung University, Taiwan)

Applications and design for different kinds of fiber grating sensors (Invited Talk)....N/A

Wen-Fung Liu (Feng Chia University, Taiwan)

Enhanced optoelectronic properties on AZO thin film by inserting meticulous nano-silver quasi-mesh structures....N/A

Chen-Hui Weng, Yen-Sheng Lin, and Cheng-Wei Chen (I-Shou University, Taiwan)

Enhanced conductivity by constructing the nano-Au quasi-mesh structures on Al-doped ZnO thin films....N/A

Cheng-Wei Chen, Yen-Sheng Lin, and Chen-Hui Weng (I-Shou University, Taiwan)

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Best Student Paper Award Ceremony

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

T6-2 Fiber Optics and Photonic Devices II

Room: IB201

Session Chairs:

Nai-Hsiang Sun (I-Shou University, Taiwan)

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

Jung-Sheng Chiang, Syuan-Yu Jhang, Yong-Hang Wu and Nai-Hsiang Sun (I-Shou University, Taiwan)

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)

T1-2 Green Photonics II

Session chairs:

Nan-Kuang Chen (National United University, Taiwan)

Hiroki Hamada (Kinki University, Japan)

Room: IB202

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Nan-Kuang Chen (National United University, Taiwan)

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Room: IB101

Session chairs:

Jung-Sheng Chiang (I-Shou University, Taiwan)

Yeong-Her Wang (National Cheng Kung University, Taiwan)

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Minoru Watanabe (Shizuoka University, Japan)

Environmentally Benign and Health-caring Warm-white Lighting Using Rare-Earth-Element Free Fluorescence Nano-composites (Invited Talk)....N/A

Ching-Fuh Lin (National Taiwan University, Taiwan)

09:30 - 12:00

Poster Session II:

Zone B, IB 1F

Session Chairs:

Yung-Jr Hung (National Sun Yat-sen University, Taiwan)

Chien-Chung Lin (National Chiao Tung University, Taiwan)

PW-01: An Efficient VLSI Architecture of Lossless ECG Compression for Wireless Healthcare Monitoring System....N/A

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Chun-Long Wang, Che-Yu Lin, Bao-Ren Huang, and Kuan-Chung Chen (National Taiwan University of Science and Technology, Taiwan)

PW-04: The Liquid Sample Measurement by Use Of Low Coherence Interferometry....N/A

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....N/A

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

PW-06: 1×6 Multicast Optical Interconnection Core for Fiber Optics Sensor Network (FOSN) ApplicationN/A

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PW-08: High performance Thin-Film Flip-Chip Light Emitting Diodes with ACA technology....N/A

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)

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PW-14: Design of Low-cost Computers with Video Surveillance and Private Network Cloud Functions....N/A

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

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PW-26: Viral Detection of Enterovirus 71 Using Surface Plasmon Resonance Biosensor....N/A

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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....N/A

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)

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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)

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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)

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Yi-Kuei Yu (National Dong Hwa University, Taiwan)

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Yi-Qin Zhang, Rih-Lung Chung, Ming-Jun Lin, and Shih-Lun Chen (Chung Yuan Christian University, Taiwan)

PW-41: Investigation and Real-time Monitoring of Anti-radiation Broadband Light Source with Low Thermal Coefficient....N/A

Zhong-Yu Lu, Shien-Kuei Liaw, Sean Wang, Cheng-Hsuan Lee, Chia-Ju Lin (National Taiwan University of Science and Technology, Taiwan) and Ren-Young Liu (Senior Research Fellow, NARLabs, Taiwan)

PW-42: Water Temperature and Water Level Sensing using Fiber Bragg Gratings....N/A

Shih-Syuan Hong, Shien-Kuei Liaw, Bo-Wei Chen, Yu-Chu Lai (National Taiwan University of Science and Technology, Taiwan), Chun-Chung Chen and Zheng-Kuan Lee (National Center for Research on Earthquake Engineering)

PW-43: Indoor Positioning using visible light communications....N/A

Hoa Le-Minh (Northumbria University, UK) and Shien-Kuei Liaw (National Taiwan University of Science and Technology, Taiwan)

PW-44: Effect of the polymer overcoat on the performance of the SiN_x/SiO_x multilayer barrier for OLED gas barrier applications....312

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Te-Kuang Chiang and Yi-Hung Chiou (National University of Kaohsiung, Taiwan)

PW-46: A Three Dimensional Analytical Subthreshold Current Model for Quadruple Gate MOSFET with the Interface Trapped Charges....N/A

Te-Kuang Chiang (National University of Kaohsiung, Taiwan), Hong-Wun Gao, Yeong-Her Wang and Che-Wei Liu (National Cheng Kung University, Taiwan)

PW-47: A New Quasi-2D Interface-Trapped-Charge-Degraded Subthreshold Current Model for Junctionless Surrounding-Gate (JLSRG) MOSFETs....N/A

Te-Kuang Chiang and Yi-Hung Chiou (National University of Kaohsiung, Taiwan)

10:00 - 10:30

Coffee Break (IB 1F)

10:30 - 12:15

HS-1 Semiconductor and Thin Film Technologies

Room: IB201

Session Chairs:

Cheng-Chung Lee (National Central University, Taiwan)

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HS-2 Optical components, devices and sensor

Room: IB202

Session Chairs:

Shui-Hsiang Su (I-Shou University, Taiwan)

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

Effects of Interface State Traps on Performance of MOS-HEMTs (Invited Talk)N/A

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

FTT Block Implementation for OFDM Based Cognitive Radio System Application....N/A

Shang-Ping Pan, Shih-Chun Lin, Yen-Chang Huang, Yu-Jung Huang, Wei Lin, and Chung-Long Pan (I-Shou University, Taiwan)

Measurement for Tilted Gratings of a Fiber....N/A

Wen-Chi Chao, Nai-Hsiang Sun, Kuo-Kai Huang and Jung-Sheng Chiang (I-Shou University, Taiwan)

High performance nanowire LED (Invited Talk)N/A

Hao-Chung Kuo (National Chiao-Tung University, Taiwan)

Phase Shifted Gratings of Dielectric Waveguides with Two Grating Periods....N/A

Li-Ti Kung, Nai-Hsiang Sun, Yu-Wei Liu, Jheng-Rong Li and Jung-Sheng Chiang (I-Shou University, Taiwan)

HS-3 Electronic Devices and Transmission System

Room: IB101

Session Chairs:

Shanq-Jang Ruan (National Taiwan University of Science and Technology, Taiwan)

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Influence of the Thickness of Ge Layer on the Optical Properties and Recording Characteristics of Ge/NiGe Write-Once Blu-Ray Disc....N/A

Sin-Liang Ou (National Taiwan University, Taiwan), Hsuan-Chung Wu, Chao-Kuang Wen, Che-Wei Ma Lee, Yan-Cheng Lin, and Sheng-Chi Chen (Ming Chi University of Technology, Taiwan)

12:15 - 13:30

Lunch (Room 201, 202, 301)

13:30 - 15:00

Tutorial

Room: IB101

Chair: Jian-Jang Huang (National Taiwan University, Taiwan)

Development and Application of UV Light-Emitting Device Technologies....N/A

Dong-Sing Wu (National Chung Hsing University, Taiwan)

15:00 -15:30

Coffee Break

15:30-16:30

Invited Session

Room: IB101

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)

A 20km/60Gbps Two-Way PON (Invited Talk)....N/A

Hai-Han Lu (National Taipei University of Technology, Taiwan)

16:30 - 16:40

Closing remark

13:00 - 17:30

Free city tour to National Palace Museum for foreign participants only

Shuttle bus leaves NTUST at 13:00