

## S0301. Oral Session I

🕒 Nov 27, Wednesday, 13:30-15:00

📍 Room 505c

🗣️ **Presider:** Prof. Sheng-Kwang Hwang (National Cheng Kung University, Taiwan)  
Dr. Yuh-Jen Cheng (Academia Sinica, Taiwan)

13:30

2024-WED-S0301-I001

Invited

**Engineering and characterizing single spin defects in wide bandgap materials**

Dr. Yu-Chen Chen, Academia Sinica (Taiwan)

14:00

2024-WED-S0301-O001

**Field test of long-distance frequency-comb entanglement distribution via optical fiber**

Po-Han Chen, Sheng-Hung Wang, Cheng-Yu Yang, Yen-Hung Chen, Pin Ju Tsai, National Central University (Taiwan)

14:15

2024-WED-S0301-O002

**Frequency-spacing-tunable OFC generation using cascaded injection of semiconductor lasers**

Hsu-Ting Tang, Yu-Han Hung, National Sun Yat-sen University (Taiwan)

14:30

2024-WED-S0301-O003

**Topological Edge State Laser via Band Inversion in One Dimensional High Contrast Grating**

Yu-Kai Chen, Hsu-Chun Hu, Zhen-Ting Huang, Jih-Sheng Wu, Tien-Chang Lu, National Yang Ming Chiao Tung University (Taiwan)

14:45

2024-WED-S0301-O004

**Topological Edge States and Quantized Landau Levels Created by Continuous Strain in Photonic Crystal**

Ta Kuan Liu, Yen-Hsun Chen, Jih-Sheng Wu, Tien-Chang Lu, National Yang Ming Chiao Tung University (Taiwan)

## S0302. Oral Session II

🕒 Nov 27, Wednesday, 15:15-16:45

📍 Room 505c

🗣️ **Presider:** Prof. Chao-Kuei Lee (National Sun Yat-sen University, Taiwan)  
Prof. Lung-Chien Chen (National Taipei University of Technology, Taiwan)

15:15

2024-WED-S0302-I001

Invited

**Growth of crystal orientation controlled single crystal stripes in Si/Ge thin film on SiO<sub>2</sub> for Si photonics**

Prof. Wenchang Yeh, Shimane University (Japan)

15:45

2024-WED-S0302-O001

**FPGA and Deep Neural Network-based Spatial-spectral Interferometry for Fast Optical Dispersion Analysis**

Jui-Chi Chang, Chia-Yuan Chang, Xiang-Yu Ye, National Cheng Kung University (Taiwan)

16:00

2024-WED-S0302-O002

**Laser self-injection locking by high-quality external cavity**

Ying Yu Lin, Zheng-Xiang Liao, Jin-Wei Shi, National Central University (Taiwan); Pei-Hsun Wang, National Yang Ming Chiao Tung University (Taiwan)

16:15

2024-WED-S0302-O003

**Uncooled High-Power 1.31- $\mu\text{m}$  DFB Laser for High Efficiency Co-Packaged Optics Applications**

Te-Hua Liu, You-Yu Tu, National Taiwan University (Taiwan); Hao-Chung Kuo, National Yang Ming Chiao Tung University (Taiwan); Chao-Hsin Wu, National Taiwan University (Taiwan)

16:30

2024-WED-S0302-O004

**Integrated Quantum Photonics for the Application of Quantum Random Number Generation**

Chen-Han Chou, Wei-Kuan Li, Ming-Chang Lee, National Tsing-Hua University (Taiwan)

## S0303. Oral Session III

🕒 Nov 28, Thursday, 10:45-12:00

📍 Room 505c

🗣️ **Presider:** Prof. Yin-Chieh Lai (National Yang Ming Chiao Tung University, Taiwan)  
Prof. Ray-Kuang Lee (National Tsing Hua University, Taiwan)

10:45

2024-THU-S0303-I001

Invited

### Interferometry in the quantum age

Prof. OU Zheyu Jeff, City University of Hong Kong (China)

11:15

2024-THU-S0303-O001

### Bayesian Machine Learning for Degradation Analysis in Photon-Added Squeezed State Tomography

Hsieh Hsien Yi, Ray-Kuang Lee, National Tsing Hua University (Taiwan)

11:30

2024-THU-S0303-O002

### Vacuum squeezed states from PPLN waveguide chips

Hsin-Hung Wu, Ray-Kuang Lee, National Tsing-Hua University (Taiwan); Yen-Hung Chen, National Central University (Taiwan); Li-An Chu, National Tsing-Hua University (Taiwan); Rui-Cheng Hong, National Central University (Taiwan); Chien-Ming Wu, National Tsing-Hua University (Taiwan)

11:45

2024-THU-S0303-O003

### Machine Learning Enhanced Quantum State Tomography: A Covariance Matrix Approach

Juan Camilo Rodriguez Perez, Hsien-Yi Hsieh, Ray-Kuang Lee, National Tsing Hua University (Taiwan)

## S0304. Oral Session IV

🕒 Nov 28, Thursday, 13:30-14:45

📍 Room 505c

🗣️ **Presider:** Prof. Ray-Kuang Lee (National Tsing Hua University, Taiwan)  
Dr. Kung-Hsuan Lin (Academia Sinica, Taiwan)

13:30

2024-THU-S0304-I001

Invited

### High Intensity Laser Patterning: Nanoscale Resolution over Large Areas

Prof. Saulius Juodkazis, Swinburne University of Technology (Australia)

14:00

2024-THU-S0304-O001

### Distributed-feedback Cherenkov Free-electron Laser with Organ-pipe-like Resonance

Hossein Shirvani, Yen-Chieh Huang, National Tsing Hua University (Taiwan)

14:15

2024-THU-S0304-O002

### Compressible $\mu\text{J}$ -Level Broadband Continuum Generation at High MHz Repetition Rates Using a High-Pressure Gas-Filled Multipass Cell

Swathy Bhuvanesh, Shih-Hsuan Chia, National Yang Ming Chiao Tung University (Taiwan)

14:30

2024-THU-S0304-O003

### Four-Wave Mixing in a Quantum-Dash Dual-Wavelength Distributed Feedback C-band Laser

Patrick Laferriere, Carleton University (Canada); Lais Fujii dos Santos, University of Ottawa (Canada); Mohammed Rahim, Philip Poole, National Research Council Canada (Canada); Ksenia Dolgaleva, University of Ottawa (Canada); Khaled Mnaymneh, National Research Council Canada (Canada); Connor Kupchak, Carleton University (Canada)

## S0305. Oral Session V

### Joint Session - Si Photonics: AI computing and CPO with Quantum Photonics and Laser Technology V

🕒 Nov 28, Thursday, 15:00-16:00

📍 Room 505c

🗣️ Presider: Prof. Yin-Chieh Lai (National Yang Ming Chiao Tung University, Taiwan)  
Prof. Yen-Hung Chen (National Central University, Taiwan)

15:00	<p>Si Photonics: AI computing and CPO</p> <p><b>Challenges and Opportunities: Optical Transmission in Taiwan from an AI Perspective</b></p> <p>Yen-Hsiang Fang, Industrial Technology Research Institute</p>
15:30	<p>Si Photonics: AI computing and CPO</p> <p><b>Advanced Packaging Solution: Chiplet and Silicon Photonics</b></p> <p>Vincent Lin, Advanced Semiconductor Engineering, Inc.</p>

## S0306. Oral Session VI

🕒 Nov 29, Friday, 09:00-10:45

📍 Room 505c

🗣️ Presider: Dr. Kung-Hsuan Lin (Academia Sinica, Taiwan)  
Dr. Yuh-Jen Cheng (Academia Sinica, Taiwan)

09:00	<p>2024-FRI-S0306-O001</p> <p><b>Room-Temperature, Tunable Lasing from Quasi-2D Perovskites Integrated with Plasmonic Lattices</b></p> <p>Yen-Yu Wang, Academia Sinica (Taiwan); Xing-Hao Lee, Chiung-Han Chen, Linchyn Yuan, Yin-Ti Lai, Tzu-Yu Peng, National Taiwan University (Taiwan); Jia-Wern Chen, Academia Sinica (Taiwan); Chu-Chen Chueh, National Taiwan University (Taiwan); Yu-Jung Lu, Academia Sinica (Taiwan)</p>
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## S0306. Oral Session VI

🕒 Nov 29, Friday, 09:00-10:45

📍 Room 505c

🗣️ Presider: Dr. Kung-Hsuan Lin (Academia Sinica, Taiwan)  
Dr. Yuh-Jen Cheng (Academia Sinica, Taiwan)

09:15	<p>2024-FRI-S0306-O002</p> <p><b>An 850-nm VCSEL with an Elliptical Aperture for Reduced RMS Spectral Width and Relative Intensity Noise</b></p> <p>Jun Zhang Chen, Ting Yu Wu, Yun Cheng Yang, Chao Hsin Wu, National Taiwan University (Taiwan)</p>
09:30	<p>2024-FRI-S0306-O003</p> <p><b>InGaN-based PCSELs utilizing circular or triangular holes in blue spectral region</b></p> <p>Ching-Han Lin, Wen-Hsuan Hsieh, Po-Yang Chang, Chia-Yen Huang, Tien-Chang Lu, National Yang Ming Chiao Tung University (Taiwan)</p>
09:45	<p>2024-FRI-S0306-O004</p> <p><b>High-Entropy Chaos in a Semiconductor Laser with Dual-Loop Optical Feedback for Random Number Generation</b></p> <p>Ding-Yuan Gao, Chin-Hao Tseng, Sheng-Kwang Hwang, National Cheng Kung University (Taiwan)</p>
10:00	<p>2024-FRI-S0306-O005</p> <p><b>Quantum-Enhanced Target Detection Using Time-Correlated Photon Pairs</b></p> <p>GuanTing Pan, Pin-Chia Huang, Chien-Ho Liu, Pin-Ju Tsai, Yen-Hung Chen, National Central University (Taiwan)</p>
10:15	<p>2024-FRI-S0306-O006</p> <p><b>Comparison of Axially and Helically Corrugated Waveguides for THz Free-electron Laser Operation</b></p> <p>Hossein Shirvani, Chih-Ying Lien, Yen-Chieh Huang, National Tsing Hua University (Taiwan)</p>
10:30	<p>2024-FRI-S0306-O007</p> <p><b>Short pulse effect in multi-junction VCSELs</b></p> <p>I-Chun Hsu, Wei-Hao Huang, Tien-chang Lu, National Yang Ming Chiao Tung University (Taiwan)</p>

## S3. Poster Session I

🕒 Nov 27, Wednesday, 13:30-16:00

📍 Room 521

2024-WED-P0301-P001

### High-Power Taper-Fused Side Pump and Signal Combiner with Novel Twisted Pump Structure

Yu Chia Chang, Yin Wen Lee, National Taipei University of Technology (Taiwan); Jiun Jie Liao, Fang Zheng Lin, Photonicore Technologies Co., Ltd. (Taiwan); Benson Shen, Lightel Technologies Inc. (Taiwan)

2024-WED-P0301-P002

### Characterization of thermal degraded optical cat states by non-Gaussianity

Po-Han Wang, Ray-Kuang Lee, National Tsing Hua University (Taiwan)

2024-WED-P0301-P003

### Novel Organic Dye-Blended Films with CBP as the Host for Amplified Spontaneous Emission

Yu-Cheng Hou, National Taipei University of Technology (Taiwan); Tzu-Chau Lin, National Central University (Taiwan); Ja-Hon Lin, National Taipei University of Technology (Taiwan)

2024-WED-P0301-P004

### Exploring the feasibility of red LED-pumped lasers

Zan-Yi Hong, Chia-Jui Chuang, Chien-Yuan Han, Chun-Yu Cho, National United University (Taiwan)

2024-WED-P0301-P005

### Designing a Photonic Crystal Surface Emitting Laser for 3D sensing

Zhong Hsun Li, National Yang Ming Chiao Tung University (Taiwan); Wei-Ta Huang, Hao-Chung Kuo, Chia-Hsun Chang, National Yang Ming Chiao Tung University/Hon Hai Research Institute (Taiwan); Hsiang-Chen Wang, Yao-Wei Huang, National Yang Ming Chiao Tung University (Taiwan); Wen-Cheng Hsu, National Yang Ming Chiao Tung University/Hon Hai Research Institute (Taiwan); Yu-Heng Hong, Hon Hai Research Institute (Taiwan); Shu-Wei Chang, National Yang Ming Chiao Tung University/Academia Sinica (Taiwan); Kuo-Bing Hong, Hon Hai Research Institute (Taiwan)

2024-WED-P0301-P006

### Measurements of Relative Intensity Noise in VCSELs and Its Correlation with Intrinsic Response Characteristics

Ting-Yu Wu, Jun-Zhang Chen, Yun-Cheng Yang, Chao-Hsin Wu, National Taiwan University (Taiwan)

2024-WED-P0301-P007

### The Study of Coupling Mechanism Between Resonators of the Semiconductor Circular Ring Laser Diode

Ming Chang Shih, Yuan Kai Pao, Wen How Lan, National University of Kaohsiung (Taiwan)

2024-WED-P0301-P008

### Generating optical and microwave frequency combs by semiconductor lasers subject to both optical injection and optoelectronic feedback

Wei Zhe Lin, Guan-Bo Tung, Yu-Shan Juan, Yuan Ze University (Taiwan)

2024-WED-P0301-P009

### Entanglement from two squeezed states

Hua Li Chen, Hsien-Yi Hsieh, Hsun-Chung Wu, Zi-Hao Shi, Ole Steuernagel, Chien-Ming Wu, Ray-Kuang Lee, National Tsing Hua University (Taiwan)

2024-WED-P0301-P010

### Fiber-based measurement on the squeezing properties for micro-ring resonators

Zi-Hao Shi, Cheng-Ting Liao, Po-Han Wang, Te-Hwei Suen, Chien-Ming Wu, Ming-Chang Lee, Ray-Kuang Lee, National Tsing Hua University (Taiwan)

2024-WED-P0301-P011

### Analysis of Duty Cycle in Square Wave Generated by Semiconductor Laser under Hybrid Disturbance

Chin Kuanhsiang, Hu HongLiang, Juan YuShan, Yuan Ze University (Taiwan)

2024-WED-P0301-P012

### Generation of Flat Top Beam by Optimized Annular Ring Phase Hologram

Fu-Kai Lin, Yuan-Yao Lin, National Sun Yat-Sen University (Taiwan)

2024-WED-P0301-P013

### Measurement of stable 1064nm single longitudinal mode fiber laser based on six sub-ring cavities

Yi Hui Lin, Fan-Chang Meng, Zi Wang, Shien-Kuei Liaw, National Taiwan University of Science and Technology (Taiwan); Chien-Hung Yeh, Feng Chia University (Taiwan); Hsiou-Hsin Tsai, Taipei Medical University (Taiwan)

2024-WED-P0301-P014

### Realization of Wavelength-Tunable Laser by Diode-Pumped Yb:YAG Rod of High-Doping Concentration

Su Cheng-Yu, Lin Yuan-Yao, National Sun Yat-sen University (Taiwan)

## S3. Poster Session II

🕒 Nov 28, Thursday, 13:30-16:00

📍 Room 521

2024-THU-P0302-P001

### High-Frequency Square Wave Generation Utilizing Nonlinear dynamics of Semiconductor Lasers

Chang-Yu Liu, Hong-Liang Hu, Yu-Shan Juan, Yuan Ze University (Taiwan)

2024-THU-P0302-P002

### A FMCW Lidar system using homemade PQ/PMMA VBG feedback and nematic LC tuned diode laser

Yu-Hsiang Lin, Wen-Siou Tsai, Te-yuan Chung, National Central University (Taiwan)

2024-THU-P0302-P003

### Irregular Pulsing Dynamics in External Cavity Lasers Using Saturable Absorber Mirror

Chang-Si Lin, Wei-Li Chen, National ChangHua University of Education (Taiwan)

2024-THU-P0302-P004

### High luminance broadband light source using Ce:YAG crystal fiber

Yu Chen Tseng, Sz Hau Chen, Yao Ren Hsieh, Zi Yao Wong, Ping Rong Huang, National Taipei University of Technology (Taiwan); Sheng Lung Huang, National Taiwan Univeristy (Taiwan); Yin Wen Lee, National Taipei University of Technology (Taiwan)

2024-THU-P0302-P005

### Efficient LED-directed pumped Nd:YVO<sub>4</sub> laser

Po-Cheng Lin, National United University (Taiwan); Kuan-Wei Su, National Yang Ming Chiao Tung University (Taiwan); Chun-Yu Cho, National United University (Taiwan)

2024-THU-P0302-P006

### Bessel Beam Generation and Optimization with Spatial Light Modulator

Jun-Da Tseng, I-Chen Tsai, Chia-Yuan Chang, National Cheng Kung University (Taiwan)

2024-THU-P0302-P007

### Wigner's Phase Space Current for the Conditional Dynamics in Entangled Two Mode Systems — Seeing Beam Splitters in a New Light

Ole Steuernagel, Ray-Kuang Lee, National Tsing Hua University (Taiwan)

2024-THU-P0302-P008

### Quantumness Measure from Phase Space Distributions

Ole Steuernagel, Ray-Kuang Lee, National Tsing Hua University (Taiwan)

2024-THU-P0302-P009

### Investigating the optical vortex lattices under astigmatic transformations in frequency-doubled laser modes

Chen-Kai Sung, Jung-Chen Tung, National Taipei University of Technology (Taiwan)

2024-THU-P0302-P010

### Stabilized OFC generation using a cascaded semiconductor laser injection system with optical feedback

Chian-Yun Lo, Hsu-Ting Tang, Yu-Han Hung, National Sun Yat-sen University (Taiwan)

2024-THU-P0302-P011

### Optical nonlinearity investigation of Cr<sub>2</sub>Te<sub>3</sub>

Bo-Yi Chen, Jia-Chi Lan, Mu-Hsuan Tsai, National Sun Yat-sen University (Taiwan); Kyungtaek Lee, Yeong Gwang Khim, In Hak Lee, Young Jun Chang, Ju Han Lee, University of Seoul (Korea, South); Chao-Kuei Lee, National Sun Yat-sen University (Taiwan)

2024-THU-P0302-P012

### Experimental observation of oversaturation induced pulse breaking in perovskite-based fiber laser

Chen I-Hsuan, Wang Hsuan-Sen, National Sun Yat-sen University (Taiwan); Chao Yu-Chiang, National Taiwan Normal University (Taiwan); Lin Gong-Ru, National Taiwan University (Taiwan); Lee Chao-Kuei, National Sun Yat-sen University (Taiwan)

2024-THU-P0302-P013

### Manipulation of Visible Transverse Optical Fields in a Higher-Order-Mode Fiber by Mechanically Induced LPG

Wen-Hsuan Kuan, Kuei-Huei Lin, University of Taipei (Taiwan)

2024-THU-P0302-P014

### Polarization Singularities in High-Order Modes of Structured Light and Superposition of Vector Beams

Yu-Chen Chiu, Yin-Hung Lin, Chih-An Chen, Kuei-Huei Lin, Wen-Hsuan Kuan, University of Taipei (Taiwan)

## S3. Poster Session II

🕒 Nov 28, Thursday, 13:30-16:00

📍 Room 521

2024-THU-P0302-P015

### **< 160-Hz-Linewidth, Broadband-Tunable Terahertz-Wave Generation Using Two Mutually Coupled Semiconductor Lasers at Period-One Nonlinear Dynamics**

Chin-Hao Tseng, National Cheng Kung University (Taiwan); Yung-Jr Hung, National Sun Yat-Sen University (Taiwan); Sheng-Kwang Hwang, National Cheng Kung University (Taiwan)

2024-THU-P0302-P016

### **Transverse Mode Pump on the Spatial-Color Distribution of Cascaded OPO-up conversion from Nonlinear Photonic Crystals**

Je-Hau Shr, Kai-Hsun Chang, Jie-Hua Lai, Chia-Chun Fan, Lung-Han Peng, National Taiwan University (Taiwan)

2024-THU-P0302-P017

### **Investigation of 1064 nm Band Ytterbium-doped Fiber Pulse Laser for Animal Skin Testing**

Ya-Hsuan Tsai, Cheng-Hsiao Chung, Shien-Kuei Liaw, National Taiwan University of Science and Technology (Taiwan); Kai-Chieh Chou, Yi-Wen Wang, Kuang-Ling Ou, National Defense Medical Center (Taiwan)

2024-THU-P0302-P018

### **Low threshold eye-safe vortex generation from the off-axis pumped intracavity singly resonant OPO**

Yen-Pei Huang, Chun-Yu Cho, National United University (Taiwan)

2024-THU-P0302-P019

### **Thermal Lens Effect in a Fiber-Coupled Laser-Diode End-Pumped Nd-doped Ceramic YAG Laser**

Cheng-Hao Chang, Yu-Pin Lan, National Yang Ming Chiao Tung University (Taiwan)

2024-THU-P0302-P020

### **Effective Power Scaling up on Diode End-Pumped Pr:YLF Lasers by Optimizing Mode Overlap and Extraction Efficiency**

Yen-Ju Chen, Yu-Pin Lan, Yang Ming Jiao Tong University (Taiwan)