

# 2021 International Conference of Smart Sensors(ICSS 2021)

26<sup>th</sup> Symposium of Association of Chemical Sensors in Taiwan  
24<sup>th</sup> Nano Engineering and Microsystem Technology Conference

## Award List

Correction	
Oral B	Poster E
#149 as Distinguished Award #113 as Honorable Award	Add #145 as Distinguished Award

# Oral Session A: Distinguished Award



Paper ID	Title	Authors
222	Preparation and Characterization of Self-bonded Au/CuPc/AbCA19-9/BSA Electrode as a CA19-9 Antigen Sensor	Zhao Sheng Wang, Hung Yu Lin, Yu Lin Nie, Yaw Terng Chern and Mu Yi Hua
45	Graphene Oxide-Collagen Composite as an Anti-Fibrosis Nano Biointerface for Biohybrid Implantable Devices	Pei Hsuan Tsai, Chong You Chen, Ya Hui Lin and Guan Yu Chen
143	Boron-doped Graphene Quantum Dots Anchored on Carbon Nanotubes as a Noble Metal-free Electrocatalyst for Online Dissolved Oxygen Biosensor	Yu-Chi Lin, Yu Xuan Wang, Pin Hsuan Lin, Yi Han Yen, Kuan Jung Chen and Min Hsin Yeh
109	Full NIR laser-processed Au NPs/InZnO photodetector with improved visible light detection for colorimetric urea sensing application	Ching-Fu Lin, Dominique Berling, Hsiao-Wen Zan and Olivier Soppera
124	Piezoresistive Stretchable Strain Sensor Based on Laser-Induced Graphene	Yu-Hsin Yen, Chao-Shin Hsu, Zheng-Yan Lei, Hsin-Jou Wang and Yao-Chuan Tsai
189	Study the $\beta$ to $\alpha$ phase transformation of Tantalum Thin Films Using High Power Impulse Magnetron Sputter method	Wei-Chieh Chen, Chiao-Yi Yu, Zhao-Ying Wang and Ming-Tzer Lin

# Oral Session A: Honorable Award



Paper ID	Title	Authors
111	Water quality monitoring using gold nanoclusters embedded paper and a syringe-type microfluidic device	Hsin-Min Tsai, Jia-En Lee, Jia-Hui Lin, Chun-Yen Chang and Chien-Fu Chen*
236	Microplasma assisted and One-step fabricated Silver/N doped graphene quantum dot(NGQD) nanohybrids for enhance Raman detection	Yeh Yi-Jui, Wei-Hung Chiang and Kuo-Lun Tung
26	Dielectric constant and Dipole moment Dependent Hysteresis in Suspended Bilayer Graphene Transistor	Yu Xuan Lu, Yu Te Shen, Ming Hsiu Tsai, Chih Ting Lin and Shun Chiu Lin
203	Si Nanobelt Devices as Room-Temperature Ultra-High Sensitive Hydrogen Gas Sensor via One-step H <sub>2</sub> Plasma Treatment	Yu-Sheng Lin and Jeng-Tzong Sheu
169	Research of Au Nanoparticles Films and Au@Ag Core-Shell Nanoparticles Films's Characteristic Analysis Based on LSPR Biosensor	Yi-Xin Gao, Huseh-Tao Chou, Tien-Ming Wu, Yong-Sen Liao, Kuan-Hua Chiang, Wei-Chao Su and Zheng-Han Hu
210	Fabrication of Nanostructured Silicon for Surface-Enhanced Raman Spectrometry	You-Shan Zheng and Chia-Wen Tsao

# Oral Session B: Distinguished Award



Paper ID	Title	Authors
155	Ultrasensitive and rapid COVID-19 tests for IgM, IgG, IgA and SARS-COV-2 pseudovirus in clinical serological and saliva samples	Ying-Pei Hsu, Nan-Si Li, Hao-Han Pang, Shiao-Wei Kuo*, Hung-Wei, Yang*
167	Using Isothermal Enzyme-Free Amplification and Surface Plasmon Resonance Biosensor to Detect SARS-CoV-2	Wei-Yin Lin, Tzu-Heng Wu, Hui-Yun Lo and Chii-Wann Lin
156	Highly sensitive and rapid viral RNA detection for COVID 19 with freeze dried Electric double-layer Field- Effect Transistor Biosensors	Akhil K Paulose, Po-Hsuan Chen and Yu-Lin Wang
98	Label-free Electrochemical Impedance Based Biosensor for Detection of Periodontal Disease	Hsin-Ju Tang, Yung-Kai Huang and Cheng-Hsin Chuang
149	Development of electrochemical aptamer-based sensor for the detection of insulin using Cu-BTC/ZIF-L	Min-Chin Yu, Hsiao-Hsuan Chen, Rajalakshmi Sakthivel and Ren-Jei Chung*
39	A Rotational Diffusometry Platform for Detection of Cytokines with Functionalized Janus Particles	Wei-Long Chen and Han-Sheng Chuang

# Oral Session B: Honorable Award

Paper ID	Title	Authors
82	Trace Detection of Vascular Endothelial Growth Factor using a 3-Dimensional Dielectrophoretic Microfluidic Chip	Kurt Sy, Sheng-Jye Lim and Hsien-Chang Chang
129	Label-free organic electrochemical transistors/SERS-active hybrid biosensors based on gold nanoparticles-decorated PEDOT films	Po-I Wu, Hsueh-Sheng Tseng, Yu-Sheng Hsiao, Chung-Kuan Wu, Hsiao-Hua Yu and Peilin Chen
87	Rapid diagnosis of COVID-19 with lateral flow assays based on loop-mediated isothermal application (LAMP) biosensors	Wen-Yi Huang, Nan-Fu Chiu and Chii-Wann Lin
112	To establish real-time electrochemical gene mutation platform for circulating tumor cells in non-small cell lung cancer	Yi-Chen Huang and Yi-Chiuen Hu
113	An instrument-free infectious disease diagnostic sensor based on a 3D origami paper-based analytical device	Cheng-Yang Tung, Tsung-Hua Li, Jia-En Lee, Chiao-Wen Chen, and Chien-Fu Chen*
8	Research on Sensing Characteristics of Non-enzymatic Potentiometric MoO <sub>3</sub> Ascorbic Acid Biosensor	Kun-Tse Lee, Jung-Chuan Chou, Chih-Hsien Lai, Po-Yu Kuo, Yu-Hsun Nien, Yu-Hao Huang, Yung-Yu Chen, Chun-Hung Chang, Wei-Hao Lai and Zhi-Xuan Kang



# Oral Session C: Distinguished Award



Paper ID	Title	Authors
224	Study Angiogenesis into Three-Dimensional (3D) Matrix of Endothelial Cells under Oxygen Gradients Using Microfluidic Devices	Heng-Hua Hsu, Ping-Liang Ko, and Yi-Chung Tung
232	Intracellular Oxygen Response Monitoring within Microfluidic Devices Using Widefield Frequency Domain Fluorescence Lifetime Imaging Microscopy (FD-FLIM)	Hsiao-Mei Wu, Wei-Jen Chang, Tse-Ang Lee, Wei-Hao Liao and Yi-Chung Tung
195	Studying initial metastasis at the matrix interface with different matrix stiffness in microfluidics	Ya-Chu Tsai and Ting-Yuan Tu
133	Neurotransmitter detection using $\mu$ PAD system with smartphone	Chun-Yi Lin, Pin-Chuan Chen, Kuan-Han Chen and Yi-Chun Yeh
128	Creating 3D Microfluidic Channels within a Single-Layer of Paper via Stereolithographic Printing	Ming-Yi Xu and Pin-Chuan Chen
209	Shun-Wen Cheng, Tan-Yueh Chen, Hsing-Cheng Chu and Tzong-Rong Ger	Magnetic nanoparticles used in protein absorption under the alternative magnetic field

# Oral Session C: Honorable Award

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Paper ID	Title	Authors
192	The Core-Annular Liquid-Liquid Microextractor With Scalability Strategies	Po-Ying Chen, Cheng-Yan Lin and Ya-Yu Chiang
33	Micro-droplet manipulation from parallel plate to open region in EWOD platform	Yii-Nuoh Chang and Da-Jeng Yao
94	LMP1 gene detection with polymerase chain reaction in microfluidic chip combined with nanoslit surface plasmon resonance sensor	Han-Yun Hsieh, Ray Chang, Yung-Yu Huang, Pei-Kuen Wei, Yu-Jui Fan and Horn-Jiunn Sheen
110	An Agglutination-Based Microfluidic Device for Effective Blood Typing and Hematocrit Tests	You-Mao Liao, Chun-Yen Chang, Jia-Hui Lin, and Chien-Fu Chen*
200	A Liquid-Liquid Separator For Immiscible Liquids With Helix Wire	Yu-Chieh Chen, Yi-Chieh Chang and Ya-Yu Chiang
211	Rapid and Low Temperature Microbonding of Polymer Microdevice Through Microwave Radiation	Chang-Yen Chang and Chia-Wen Tsao

# Oral Session D: Distinguished Award



Paper ID	Title	Authors
11	Capacitive CMOS Humidity Sensor with Novel Fringe Electrodes and Polyimide-Pillars for Performance Enhancement	Chia Hung Yang, Cheng Chun Chang, Ya Chu Lee, Tung Lin Chien and Weileun Fang
77	Development of an electrokinetically-enhanced multiplex detection platform for the rapid and early diagnosis of sepsis	Neil Adrian Ondevilla and Hsien-Chang Chang
85	Piston-shaped CMOS-MEMS CMUT front-end with improved displacement uniformity for transduction enhancement	Chun-Yu Chou, Po-Chun Chen, Hon-Teng Wu, Tzu-Hsuan Hsu and Ming-Huang Li
186	The IoT-based optical detection platform for diagnosis of oral squamous cell carcinoma	Zi-Yu Liao, Ting-Yi Lin, Hsiang-Yu Lei, Hsing-Ying Lin and Chen-Han Huang
105	A piezoelectric MEMS mode-matched gyroscope based on secondary elliptical mode	Chin-Yu Chang, Ngoc Minh Nguyen, Gayathri Pillai and Sheng-Shian Li
71	High resolution patch type temperature sensor for human body utilizing the electromigration characteristics of hydrogel	Jia-Yu Yang and Cheng-Hsin Chuang

# Oral Session D: Honorable Award

Paper ID	Title	Authors
60	Electrocatalytic performance of graphene oxide nano composition material for the electrochemical detection of antimicrobial drug	Chi-Hsuan Fan, Muthumariappan Akilarasan, Bih-Show Lou and Shen-Ming Chen
119	Using solid-liquid contact electrification for carbohydrate-protein interactions studied and its use for label-free bacterial detection	Yu-Zih Lin, Yu-Ping Pao and Zong-Hong Lin
164	VERTICAL INTEGRATION OF PRESSURE/HUMIDITY/TEMPERATURE SENSORS FOR CMOS-MEMS ENVIRONMENTAL SENSING HUB	Yung-Chian Lin, Ya-Chu Lee, Chia-Hung Yang and Weileun Fang
121	Graphene Quantum Dots and Gold Nanoclusters for the Pathogens Detection on Paper-based Devices	Chi-Fong Yan, Jia-Hui Lin, Zhi-Shun Dong, Wei-Ting Chen, Ming-Wei You, and Chien-Fu Chen*
103	A CMOS-MEMS CAPACITIVE PRESSURE SENSOR WITH DIFFERENTIAL SENSING ELECTRODES AND ON-CHIP FREQUENCY OUTPUT CIRCUITS	Po-Wei Liao, Hao-Chiao Hong and Yi Chiu
185	Design of AlN Thin Film Piezoelectric MEMS Resonator for Magnetic Sensor Application	Ken-Wei Tang, Po-Chih Cheng, Shyam Trivedi and Sheng-Shian Li



# Oral Session E: Distinguished Award



Paper ID	Title	Authors
125	An Automated Optical Inspection System for Determination of Cross-Sectional Dimensions for Complex Microchannel Structures Embedded in Transparent Bonded Microfluidic Chips	Chi Minh Truong and Pin-Chuan Chen
15	Applying Black Phosphorous Quantum Dots to Double-Layer Photoanode of Dye-Sensitized Solar Cells	Cheng-Lin Yang, Chih-Hsien Lai, Jung-Chuan Chou, Yu-Hsun Nien, Yi-Tang Lin, Wei-Cheng Hsu and Po-Yu Kuo
92	Intrinsically Temperature Compensated Shear-Horizontal SAW Resonators in Lithium Niobate on Insulator (LNOI) Platform	Tzu-Hsuan Hsu, Feng-Chieh Su and Ming-Huang Li
219	Microfluidic Circulatory System for <i>in vitro</i> Cell Culture Application	Ping-Liang Ko, Heng-Hua Hsu, Chien-Kai Wang, Wei-Hao Liao, and Yi-Chung Tung
153	A Wearable and Self-Powered Thermoelectric System for Wound Healing Application	Hua-Shan Wu, Hsuan-Yu Ho and Zong-Hong Lin
120	Wearable Electrical Impedance Neck Patch Sensor for Simultaneously Continuous Blood Pressure and Heart Rate Monitoring	Ting-Wei Wang, Yung-Hsin Chen, Po-Han Wei and Zong-Hong Lin

# Oral Session E: Honorable Award

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Paper ID	Title	Authors
187	A new microfluidic image acquisition platform for the colorimetric detection of bacteria	Didem Rodoplu, Cherng-shyang Chang, Cheng-yuan Kao and Chia-Hsien Hsu*
107	Real time refractive index sensing of localized surface plasmon resonance based optofluidic waveguide sensor	Devesh Barshilia and Guo-En Chang
166	Vibro-Impact Read-Out Scheme for Micromechanical Memory	Yun Yi, Hong-Sen Zheng and Wei-Chang Li
91	Early and rapid diagnosis of lung cancer biomarker by plasmonic paper-based biosensors	Chun Chi Wang and Nan-Fu Chiu
201	Development of a hydrogel interface with co-cultured HUVECs to study the invasion pattern of breast MCTS	Guan-Lin Su and Ting-Yuan Tu
97	Integration of Flexible Printed Circuit Board with Laser-Induced Graphene as Bending Strain Sensor	Chao-Shin Hsu, Yu-Hsin Yen and Yi-Chun Chung

# Poster Session: Distinguished Award

Topic	Paper ID	Title	Authors
A	67	Electrochemical nitrite sensors based on an iridium-functionalized metal–organic framework	Tzu-En Chang, Cheng-Hsun Chuang and Chung-Wei Kung
A	146	Boron-doped graphene quantum dots anchored on carbon nanotubes as a noble metal-free electrocatalyst of uric acid for wearable sweat sensor	Pawisa Kanokpaka, Yu Xuan Wang, Jun De Zhan, Chen-Jui Huang, Hitoshi Mizuguchi, Bing Joe Hwang and Min-Hsin Yeh
B	226	Antibody-Free Impedimetric Sensors for the Rapid Detection of Foodborne Bacteria with Immunomagnetic Beads	Yu-Sheng Chuang, Chiou-Ying Yang and Ching-Chou Wu
C	237	Integrated Nylon Membrane and Portable Centrifugal Microfluidic Device for Total Bacterial Count in Water	Chih-Ling Wang, Chun-Hao Chang and Bor-Ran Li
D	46	INCREASE OF DETECTIVITY FOR CMOS-MEMS THERMOELECTRIC INFRARED SENSOR	Yu-Cheng Huang, Tien Chou, Pen-Sheng Lin, Yen-Lin Chen and Weileun Fang
E	52	Analysis of Chemical Compositions in Red Wine for Building an Artificial Intelligence Wine Mixer	Chih-Ning Tsai , Lung-Yi Chen, Yi-Pei Li*, Tzu-En Lin*
E	141	Study of Wild Bird Detection and Repellent System Based on Machine Learning	Bo-Huai Wang, Yu-Wen Lai, Jing-Fang Chu, Chia-Jung Chang and Yao-Chuan Tsai
E	145	A mechanical vibration-controlled drug delivery system based on piezocatalytic MoS <sub>2</sub> nanoflower	Yu-Ying Cheng, Ssu-Chi Lin, Hsin-Hsuan Ho and Zong-Hong Lin

# Poster Session: Honorable Award

Topic	Paper ID	Title	Authors
A	38	Preparation and characteristics of a Light-Actuable Material : Liquid Crystal Elastomer Crosslinked with Methyl Red	Guan-Ting Li, Chia-Hsien Hsu and Shug-June Hwang
A	151	High Seebeck-Coefficient of Bi <sub>2</sub> Te <sub>3</sub> Nanoplates for Thermocatalytic ROS Generation	Imran Khan and Zong-Hong Lin
B	240	Digital nucleic acid detection platform with deep learning in liquid biopsy	Yu-He Liu, Yi-Cian Chen, Zhi-Yang Wei, Li-Hsien Ho, Chia-Hung Chen, Chen-Han Huang, Hakho Lee, Hsing-Ying Lin
C	75	Study of Cancer Cell Deformability in a PDMS Microchannel with integrated Micro-Pillars	Chun-Chieh Chang and Han-Sheng Chuang
D	234	Development of antisymmetric Lamb wave sensor for perspiration sensing	Yeh Chih Ting and Feng Guo Hua
E	115	A Novel Clamper for Arbitrary Objects with Both Force Feedback and Conformal Coverture Metric, Based on A Spring-Airbag Mechanism	Albert Wen-Jeng Hsue
E	138	Multi-way in-phase/out-of-phase driving cantilever array PZT MEMS microspeaker for performance enhancement	Yi-Jia Wang, Shu-Wei Chang, Sung-Cheng Lo, Shao-Da Wang, Yu-Chen Chen, Mingching Wu and Weileun Fang

