

## PRiME2020 MO2 Symposium Program

### MO2 - Chemical Sensors 13 - Recent Advances in Chemical and Biological Sensors and Analytical Systems

#### Webinar: Digital Presentation (on-demand)

##### MO2- Biosensor-1

Progr#	Title and Authors
M02-3315	Evaluation of Cytotoxic Effect of Nystatin on Yeast Cells by Electrochemical Monitoring of Intracellular NADH with Double Mediator System M. A. Alim (University of Toyama, Japan, BSMRSTU, Gopalganj, Bangladesh), H. Shinohara, and M. Suga (Faculty of Engineering, Academic Assembly, University of Toyama)
M02-3316	A Cell-Based Electrochemical Biosensor to Detect Environmental Pollutants A. L. Furst (Massachusetts Institute of Technology)
M02-3317	Modification of Au Electrode by Creatinine Imprinted Poly(1-vinylimidazole-co-N-vinylpyrrolidone) for the Impedance Detection of Creatinine Concentration M. J. Syu and R. M. Guo (National Cheng Kung University) <b>ABSTRACT WITHDRAWN</b>
M02-3318	An Allosteric Transcription Factor-Based Electrochemical Progesterone Sensor K. Sankar, R. Baer, C. Grazon, C. M. Klapperich, J. Galagan, and M. W. Grinstaff (Boston University)
M02-3319	Electrochemical Oxidation of Guanines of DNA Loaded on Carbon Nanomaterials J. Kim (Ewha Womans University)
M02-3320	1-Amino 2-Naphthol Modified Solvent Filled Carbon Nanotubes for Enhanced Electrochemical Sensing of Bioanalytes T. Gurusamy and K. Ramanujam (Indian Institute of Technology Madras)
M02-3321	Polymer Modified Carbon Fiber Multielectrode Arrays for Precision Neurotransmitter Measurements A. G. Zestos, F. A. Liu, and H. Rafi (American University)

## MO2- Biosensor-2

<b>Progr#</b>	<b>Title and Authors</b>
M02-3322	<b>(Keynote Lecture)</b> Reverse Electrodialysis As a New Power Source for Sensors T. D. Chung (Department of Chemistry, Seoul National University), S. R. Kwon, S. Baek (University of Notre Dame), J. Lee (Seoul National University), J. Rho (Stanford University), S. H. Han (Department of Chemistry, Seoul National University), and S. Y. Yeon (Seoul National University)
M02-3323	Composite Coating on Au Inverse Opals as a Highly-Sensitive Enzyme-Free W. A. Chung, P. S. Hung, S. C. Chou, C. J. WU, W. Q. Guo, and P. W. Wu (National Chiao Tung University)
M02-3324	Ni-BTC-Derived Porous NiO/Graphene Composite for Highly Sensitive Non-Enzymatic Electrochemical Glucose Detection G. Li, D. Chen (Qingdao University of Science and Technology, Weifang University of Science and Technology), Y. Chen (Qingdao University of Science and Technology), and L. Dong (Hamline University, Qingdao University of Science and Technology)
M02-3325	Optical Trapping Raman Spectroscopy as a Sensor / Actuator / Treatment System M. Bertz (Research Organization for Nano & Life Innovation, Waseda University), D. Molinnus (Institute of Nano- and Biotechnologies (INB), FH Aachen), M. J. Schoening (Institute of Nano- and Biotechnologies (INB), FH Aachen, Institute of Complex Systems (ICS 8), Research Centre Jülich GmbH), and T. Homma (Research Organization for Nano & Life Innovation, Waseda University, Department of Applied Chemistry, Waseda University)
M02-3326	Polymers Doped with Carbon Nanoparticles as Hot Electron Emission Materials for HECL Bioaffinity Assays S. Kulmala (Department of Chemistry, Aalto University), K. Salminen, and A. Kulmala (Aalto University)
M02-3327	Rare Earth Doped Nanoparticles for Theranostics F. Vetrone (Institut National de la Recherche Scientifique, Université du Québec)

## MO2- Biosensor-3

<b>Progr#</b>	<b>Title and Authors</b>
M02-3328	<b>(Sensors Division Outstanding Achievement Award Address)</b> Paper-Based Lateral Flow Strips as Point-of-Care Testing Tools for Detection of Biomarkers and Viruses N. Wu (University of Massachusetts Amherst)

### MO2- Biosensor-3

Progr#	Title and Authors
M02-3329	Electrochemical Sensing of Ethyl Acetate Volatile Organic Biomarker Using Cobalt Functionalized TiO <sub>2</sub> Nanotubes M. Misra, B. Vadlamani, N. Dhabarde, P. M. Tembo, and V. Subramanian (University of Nevada Reno)
M02-3330	Fast Screening Tests for Early Detection of Gastric Cancer R. I. Stefan-van Staden, R. M. Ilie-Mihai, and D. C. Gheorghe (INCEMC)
M02-3331	Wide-Detectable Range Electrochemical Immunosensor in PPQ to PPM Y. Sato (Hokkaido University), M. Johmen (Hitachi Chemical Co., Ltd.), M. Takahashi, and T. Kawaguchi (HOKKAIDO UNIVERSITY)
M02-3332	A Disposable Vancomycin Sensor Using Molecularly Imprinted Carbon Paste on a Ceramic Chip A. Aaryashree, Y. Takeda, Y. Yoshimi, A. Hatano (Shibaura Institute of Technology), and M. Kida (Technology Development Division, NGK Spark Plug, Co.)

### MO2-Chemical Sensor-1

Progr#	Title and Authors
M02-3365	Development of a Thin Film Sensor for Electrochemical Analysis of Molten Fluoride Salts A. Consiglio (UC Berkeley) and R. O. Scarlat (University of California - Berkeley)
M02-3366	Flow Injection Electrochemical Quartz Microbalance with ICP-OES Detection D. E. Molina, H. Beyenal, and C. F. Ivory (Washington State University)
M02-3367	Synthesis and Characterization of CdS/Ag <sub>2</sub> CO <sub>3</sub> and CdS/Uio-66/Ag <sub>2</sub> CO <sub>3</sub> Nanocomposite Electrochemical Sensor for the Determinations of Trace Metal Ions B. M. Woldegebriel (National Taiwan University of Science and Technology) <b>ABSTRACT WITHDRAWN</b>
M02-3368	Novel MgHf <sub>4</sub> P <sub>6</sub> O <sub>24</sub> As a Solid Electrolyte in Mg-Sensors M. Adamu and G. M. Kale (University of Leeds)
M02-3369	Organic-Inorganic Hybrid Sol-Gel Materials for Optical Fiber Sensing Application R. B. Figueira and C. J. R. Silva (University of Minho)
M02-3370	pH Micro-Sensor from IrOx SECM Microelectrode for Local pH Measurement While Chromium Electrodeposition A. Dasque, M. Gressier, P. L. Taberna, and M. J. Menu (CIRIMAT, UMR CNRS 5085)

M02-3371 Control of Reactions on Bipolar Electrodes Using Ion-Selective Membranes  
N. A. Ab Mutalib, C. C. Wu, K. Tsuyuki, and H. Suzuki (University of Tsukuba)

#### **MO2- Biosensor-4**

<b>Progr#</b>	<b>Title and Authors</b>
M02-3372	(Sensors Division Outstanding Achievement Award Address) Towards Biosensor Enabled Smart Dressings for Management of Chronic Wounds: Advances and Perspectives P. Bhushan, S. V. Lahade, V. A. Kamat (Florida International University), H. A. Lev-Tov, R. S. Kirsner (University of Miami), and S. Bhansali (Florida International University)
M02-3373	Preparation of Low Invasive Type Glucose Sensor for Continuous Glucose Monitoring M. Yasuzawa, K. Osugi, T. Terauchi, J. Li, and M. Kurashina (Tokushima University)
M02-3374	An Enzymatic Electrochemical Biosensor for Real-Time Detection of Physiologically Relevant Nicotine Concentrations U. Kuzmanovic, M. Chen, M. Tararina, N. Shu, P. Sensharma, A. Gupta, A. Fan, C. M. Klapperich, K. Allen, M. W. Grinstaff, and J. Galagan (Boston University)
M02-3375	Electrochemical Biosensors Integrating Metallic and Non-Metallic Nanomaterials for Biomedical Applications H. J. Lee (Kyungpook National University)
M02-3376	Electrochemical Amplification Methods in Observation of Single Nanoparticle Collisions S. J. Kwon (Konkuk University)
M02-3377	Atomically-Dispersed Functional Materials: From Single-Atom Electrocatalysts to Single-Atom Nanozymes D. Du and Y. Lin (Washington State University)

#### **MO2- Chemical Sensor-2**

<b>Progr#</b>	<b>Title and Authors</b>
M02-3378	Microfluidic Devices Using Electrochemical Micropumps and Microvalves for Autonomous Solution Processing C. Ma and H. Suzuki (University of Tsukuba)
M02-3379	Narrow-Band Green-Light-Selective Organic Photodiodes for Application in Organic-Silicon Hybrid CMOS Image Sensors

Y. Lim, S. Yoon, T. Choi (SAIT, SEC), T. Yagi (Samsung R&D Institute Japan), H. Choi, J. Shin, D. S. Leem, Y. S. Choi, S. J. Lim, K. B. Park, and S. Kim (SAIT, SEC)

**ABSTRACT WITHDRAWN**

M02-3380 Sensitive Detection of Glyphosate By a Water-Gated Organic Transistor  
K. Asano, Y. Sasaki, T. Minamiki, and T. Minami (The University of Tokyo)

M02-3381 Fluorinated Bisphenol Sorbent Materials for Spectroscopic Chemical Threat Sensing and Photonics Applications

C. A. Roberts, T. G. Grissom, R. M. Rodrigues, V. K. Nguyen (United States Naval Research Laboratory), A. Kusterbeck (Nova Research, Inc.), M. R. Papantonakis, N. F. Tyndall, D. A. Kozak, T. H. Stievater, and R. A. McGill (United States Naval Research Laboratory)

**ABSTRACT WITHDRAWN**

M02-3382 Nanocapillary Electrophoresis/Electrochemical Detection for Isotopic Ratio Determinations

M. P. Siegal, K. C. Klavetter, C. R. Perez, A. L. Frischknecht, and M. C. Wanke (Sandia National Laboratories)

**ABSTRACT WITHDRAWN**

### **MO2- Gas Sensor-1**

#### **Progr#**

#### **Title and Authors**

M02-3383 **(Keynote Lecture)**

Design of Ultra-High-Sensitive Gas Sensors by Combination of Metal Oxides Semiconductor and MEMS

K. Shimano, K. Suematsu, and K. Watanabe (Kyushu University)

M02-3384 Low-Temperature and Highly Enhanced NO<sub>2</sub> Sensing Performance of Au-Functionalized WO<sub>3</sub> Microspheres with a Hierarchical Nanostructure

Y. Shen, S. Zhao, and L. Jia (Northeastern University)

M02-3385 Novel Design of Multiple Nested Coaxial ZnO Nanotube Gas Sensors Synthesized in Porous Templates By Atomic Layer Deposition

P. Lin, K. Zhang (Old Dominion University, Dept. of Electrical Engineering), and H. Baumgart (Old Dominion University, Dept. Electrical Eng. Appl. Research Center)

M02-3386 An Investigation of the Ammonia-Sensing Mechanism of  $\alpha$ -MoO<sub>3</sub>-Based Chemi-Resistive Sensors

T. A. Ebaugh (Center for Clean Energy Engineering), L. J. Bonville (University of Connecticut), and R. Maric (Center for Clean Energy Engineering)

M02-3387 Ultra-Stable and Highly Sensitive Co Exsolution Material for Gas Sensing Applications

B. Sharma and J. H. Myung (Incheon National University)

## MO2- Biosensor-5

<b>Progr#</b>	<b>Title and Authors</b>
M02-3388	Rapid Coronavirus Detection Sensor A. Ramanujam (Texas Tech University), S. Almodovar (Texas Tech University Health Sciences Center), and G. G. Botte (Texas Tech University)
M02-3389	Electrochemical Analysis of Soft Particles Via Collision Event B. K. Kim (Sookmyung Women's University)
M02-3390	Saliva Stress Marker Monitor Using Aptamer Immobilized FET Biosensor K. Ohashi, S. Kuroiwa (Research Organ. for Nano & Life Innovation, Waseda Univ.), R. Toyama (Grad. School of Advanced Science and Eng., Waseda Univ.), H. Hayashi (Graduate school of Advanced Science and Engineering), T. Momma (Kagami Memorial Research Inst. for Mater. Sci. and Tech., Waseda Univ.), and T. Osaka (Grad. School of Advanced Science and Eng., Waseda Univ.)
M02-3391	Detection of Stress-Related Secretory IgA in Human Sweat Using Lectin-Immobilized Field Effect Transistor Biosensor H. Hayashi, N. Sakamoto (Grad. School of Advanced Science and Eng., Waseda Univ.), S. Hideshima (Research Organ. for Nano & Life Innovation, Waseda Univ.), Y. Harada, M. Tsuna (Food Research Center, Nippon Flour Mills Co., Ltd.), S. Kuroiwa, K. Ohashi (Research Organ. for Nano & Life Innovation, Waseda Univ.), T. Momma, and T. Osaka (Grad. School of Advanced Science and Eng., Waseda Univ., Research Organ. for Nano & Life Innovation, Waseda Univ.)
M02-3392	Electrochemical Detection Method Using Serotonin Oxidation inside a Single Human Platelet J. Lee and B. K. Kim (Sookmyung Women's University)

## MO2- Biosensor-6

<b>Progr#</b>	<b>Title and Authors</b>
M02-3393	QCM-D Study of Adhesion and Deformation of Bacteria onto the Periodic Nano-Pillar Array Electrode T. Ito, K. Jindai (Kansai University), H. Kojima (NICT), T. Shimizu, and S. Shingubara (Kansai University)
M02-3394	Microdevice for the Measurement of Respiratory Activity of Cells A. J. Hsueh, T. Sato, S. Park, H. Suzuki (University of Tsukuba), and M. Kinoshita (National Defense Medical College)
M02-3395	Integrated Micro Total Analysis Systems for Personalized Drug Screening H. Wanzenboeck (TU Wien)
M02-3396	Chemical Sensor Technology Based on Seed-Mediated Crystallization

G. Mao (University of New South Wales)

**ABSTRACT WITHDRAWN**

- M02-3397 Optical Characteristics of the Nano-Apertures on the Pyramid  
S. S. Choi (SunMoon University), Y. M. Lee (SunMoon University), B. S. Bae (Hoseo University), H. T. Kim (Incheon University), and S. B. Choi (Inchon National University)
- M02-3398 Nanosensor Array Platform to Capture Whole Disease Fingerprints  
M. Kim (Memorial Sloan Kettering Cancer Center), Y. Yang (Lehigh University), P. Wang (University of Maryland), C. Chen (Memorial Sloan Kettering Cancer Center), M. Antman-Passig (Memorial Sloan Kettering Cancer CTR), H. Luo (University of Maryland), M. Zheng (National Institute of Standards and Technology), Y. Wang (Maryland NanoCenter), A. Jagota (Lehigh University), and D. A. Heller (Weill Cornell Medicine, Cornell University)
- M02-3399 Synthesis and Applications of Dendrimer-Encapsulated Pt Nanoparticles in Chemical Sensors  
J. Kim (Kyung Hee University)
- M02-3400 Development of Miniaturized Interdigitated Electrode Sensors and Their Application in Taste Sensing  
S. Dudala, S. Srikanth, S. K. Dubey, A. Javed, and S. Goel (BITS Pilani Hyderabad Campus)

**MO2- Gas Sensor-2**

<b>Progr#</b>	<b>Title and Authors</b>
M02-3401	Additively Manufactured Mixed Potential Electrochemical Sensors for Natural Gas Detection L. K. Tsui (University of New Mexico), K. Agi (SensorComm Technologies, Inc.), and F. H. Garzon (University of New Mexico)
M02-3402	Toluene-Sensing Properties of Solid-Electrolyte Gas Sensors Using CeO <sub>2</sub> -Added Au Thin-Film as Sensing Electrodes T. Ueda, N. Oide, K. Kamada (Nagasaki University), T. Hyodo (Nagasaki University, Japan), and Y. Shimizu (Nagasaki University)
M02-3403	Uego Sensor for Monitoring Humidity at the Cathode of PEM Stacks R. E. Soltis (Ford Motor Company)
M02-3404	A Flexible Ammonia Gas Sensor Based on a Grafted Polyaniline Grown on a Polydopamine-Coated Polymer Film M. Matsuguchi, R. Kakunaka, and S. Shiba (Ehime University)
M02-3405	Broadband Dielectric Spectroscopy Detection of Volatile Organic Compounds with ZnO Nanorod Gas Sensors

P. K. Amoah (Old Dominion University, ECE Department, Applied Research Center), P. Lin (Old Dominion University, Dept. of Electrical Engineering, Applied Research Center), H. Baumgart (Old Dominion University, ECE Department, Old Dominion University, Dept. Electrical Eng. Appl. Research Center), and Y. Obeng (National Institute of Standards and Technology (NIST))

- M02-3406 Sensing Device for Colorectal Cancer Preventive Screening through Fecal Odor Analysis: Clinical Validation Outcomes  
G. Zonta, M. Astolfi (University of Ferrara), A. de Togni (Department of Public Health (AUSL) - UO Igiene Pubblica), A. Gaiardo (CMM-MNF, Bruno Kessler Foundation), S. Gherardi (SCENT S.r.l.), V. Guidi, N. Landini (University of Ferrara), C. Palmonari (Department of Public Health (AUSL) - UO Igiene Pubblica), and C. Malagù (University of Ferrara)

### MO2- Poster Session

- | Progr#   | Title and Authors  |
|----------|--|
| M02-3333 | Oxygen Sensing with Plasma Electrolytic Oxidized Titanium Films and Platinum Contacts<br>B. Engelkamp and K. D. Schierbaum (Heinrich-Heine-Universität Düsseldorf)<br><b>ABSTRACT WITHDRAWN</b>  |
| M02-3334 | High Sensitive Ozone Gas Sensors Using Polycrystalline P-Type Cu <sub>2</sub> O Sheet<br>T. Miyata (Kanazawa Institute of Technology), H. Tokunaga (Kanazawa Institute of Technology), and T. Minami (Kanazawa Institute of Technology)  |
| M02-3335 | Single-Crystalline Co <sub>3</sub> O <sub>4</sub> Nanocubes for Highly Sensitive Acetone Gas Sensors<br>A. Ma, H. Y. Kim, and K. M. Nam (Pusan national university)  |
| M02-3336 | Effects of Hexamethyldisilazane Modification on Gas-Sensing Properties of SnO <sub>2</sub> -Based Semiconductor Gas Sensors<br>T. Ueda, H. Fukuura, K. Kamada, T. Hyodo, and Y. Shimizu (Nagasaki University)  |
| M02-3337 | High Detectivity Ammonia Gas Sensor of Pentacene Based Organic Material with OXIDE MESH<br>S. Y. Lee (Cheongju University, Research Institute of Advanced Semiconductor Convergence Technology), B. H. Lee (Korea University, Research Institute of Advanced Semiconductor Convergence Technology), J. Y. Lee, and S. Y. Park (Cheongju University, Research Institute of Advanced Semiconductor Convergence Technology) |
| M02-3338 | Study of Effectiveness of CO and Smoke Alarm in Smoldering Fire<br>H. Hadano, Y. Nagawa (Yazaki Energy System Corporation), T. Doi (Tokyo Gas Co., Ltd.), and M. Mizuno (Tokyo University of Science)  |



- M02-3339 Machine Learning Assisted Discrimination of 20 Volatile Organic Compounds with Response Prediction Via Unifac Modeling  
T. Gao, A. Oliveira, C. Zhang, Y. Wang (University of Connecticut), J. Zhao (University of Connecticut, Dept Chemistry), and B. G. Willis (University of Connecticut)
- M02-3340 Chemoresistive Nanostructured Sensors for the Analysis of Human Tumor Tissue Exhalations  
M. Astolfi, G. Zonta, N. Landini (University of Ferrara), S. Gherardi (SCENT S.r.l.), G. Rispoli, G. Anania, M. Benedusi, V. Guidi (University of Ferrara), C. Palmonari (Department of Public Health (AUSL) - UO Igiene Pubblica), M. Valt (Ferrara University), and C. Malagù (University of Ferrara)
- M02-3341 Electrochemical Sensing Behaviour of Fabricated Au-SnO<sub>2</sub> /ITO Electrode  
A. Sharma (University of Jammu), A. Khosla (Yamagata University), and S. Arya (University of Jammu)
- M02-3342 Electrochemical Treatment Characteristics of Insoluble Anode Electrode by Surface Morphology  
M. Y. You (Materials Technology Research Institute, Pusan National University), C. W. Song, Y. J. Choi, and P. K. Song (Department of Materials Sci. and Eng., Pusan National University)
- M02-3343 Effect of Boron Doping Level on BDD Electrode for Heavy Metal Ion Sensor  
S. Kim, Y. Jeong (KBSI), P. K. Song (Pusan National University), and J. H. Yoon (Korea Basic Science Institute (KBSI))
- M02-3344 Selective Aqueous Ammonia Sensors Using Electrochemical Stripping and Capacitive-Based Detection  
A. V. Lalwani (Stanford), L. Mu, K. Woo, J. Guo, H. Dong, M. A. Holiday, D. G. Senesky, and W. A. Tarpeh (Stanford University)
- M02-3345 Solid-State FET-Based Sensors Capable of Measuring Acidity of Lubricants  
T. Hyodo, M. Yuto, H. Tanigawa, M. Tsuruoka, Y. Sakamoto, T. Ueda, K. Kamada, and Y. Shimizu (Nagasaki University)
- M02-3346 Spectroelectrochemical Study of Organic-Inorganic Hybrid Nano-Molecular Clusters Exhibiting Voltage-Gated Fluorescence Switching and Electrochromism  
D. Madugula, T. W. Wang, and M. W. Lee Jr. (University of Missouri - Columbia)
- M02-3347 Single Nickel Nanoparticle Collisions by Electrocatalytic Amplification Method  
M. J. Lee (Konkuk university) and S. J. Kwon (Konkuk University)
- ABSTRACT WITHDRAWN**
- M02-3348 Observing the Current Change with Increasing Temperature in Thermo-Responsive Polymer Solution Using Electrochemical Method  
S. Song and B. K. Kim (Sookmyung Women's University)

- M02-3349 Titanium Carbide-Based Electrochemical Biosensor: Strong Dependence of Exfoliation Method on Performance  
H. L. Chia (Nanyang Technological University), C. Mayorga-Martinez (University of Chemistry and Technology, Prague), R. D. Webster, and M. Pumera (Nanyang Technological University)  
**ABSTRACT WITHDRAWN**
- M02-3350 Glucose Sensor Using NAD-Dependent Glucose Dehydrogenase, Diaphorase, and Osmium Complex  
A. M. J. Haque, K. Lee, and H. Yang (Pusan National University)
- M02-3351 Electrochemical Properties of AuNP-Tind Nanostructures as Glucose Sensing Materials and Thorough Interference Study  
K. Grochowska, A. Olejnik (The Szwedzki Institute of Fluid-Flow Machinery PAN), J. Karczewski (Gdańsk University of Technology), and K. Siuzdak (The Szwedzki Institute of Fluid-Flow Machinery PASci)
- M02-3352 Electrochemical Sensors for Biological and Environmental Application  
S. Park (Oregon State University, Corvallis, OR, USA) and D. Koley (Oregon State University)
- M02-3353 Block-Copolymer Derived Nanoporous Thin Films for the Development of a L-BMAA Aptamer-Based Impedimetric Biosensor  
X. Santiago Maldonado (University of Puerto Rico, Rio Piedras Campus) and E. Nicolau (University of Puerto Rico at Río Piedras)
- M02-3354 Electrochemical Detection of Apolipoprotein A1 As an Alternative Method to Diagnose Early Stage of Bladder Cancer Patients  
S. E. Kim and S. Hwang (Korea Electronics Technology Institute)
- M02-3355 Investigation of the Lifetime of Electrochemical Immunosensor Based on Immunochromatographic Strip for the Infectious Disease Testing  
C. K. P. Truong, D. Han, and D. H. Lee (QSTAG Inc.)
- M02-3356 Development of a Movable Membrane Probe for the Pretreatment of Target Analytes in the Electrochemistry Based Assay  
E. Jin, A. Go, and M. H. Lee (Chung-ang University)
- M02-3357 A Polycrystalline Silicon Nanowire Field Effect Transistor for Hepatitis B Surface Antigen Sensing  
C. C. Wu, Y. F. Chang, M. R. Wang, P. T. Kuo, and T. Y. Hsu (Department of Electronic Engineering, Feng Chia University)  
**ABSTRACT WITHDRAWN**
- M02-3358 Cell Adhesion Expelling Analysis for Discriminating the State of Differentiation in HL60 Using Dielectrophoretic Force  
M. Suzuki and T. Yasukawa (University of Hyogo)

- M02-3359 Development of High Throughput Single-Cell Analysis System for Circulating Tumor Cells Based on Digital Micromirror Device  
R. Negishi, H. Saito, T. Tanaka, and T. Yoshino (Tokyo University of Agriculture and Technology)
- M02-3360 Development of a Lab on a Chip Prototype for Sex Detection in Plants  
L. Navarro Nateras, A. Z. Zuñiga Álvarez (Centro de Investigación y Desarrollo Tecnológico en Electroquímica), J. R. Casanova-Moreno, G. Harikrishna Oza (CONACYT-CIDETEQ), J. Ledesma-García, R. A. Escalona-Villalpando (Universidad Autónoma de Querétaro), and L. G. Arriaga (Centro de Investigación y Desarrollo Tecnológico en Electroquímica)
- M02-3361 Detection of Uncharged 5-Fluorouracil Exploiting Sequential Adsorption of 5-Fluorouracil-Modified Bovine Serum Albumin Using Field Effect Transistor Biosensor  
M. Fujita, H. Hayashi (Grad. School of Advanced Science and Eng., Waseda Univ.), S. Kuroiwa, K. Ohashi (Research Organ. for Nano & Life Innovation, Waseda Univ.), T. Momma (Research Organ. for Nano & Life Innovation, Waseda Univ., Grad. School of Advanced Science and Eng., Waseda Univ.), T. Osaka (Grad. School of Advanced Science and Eng., Waseda Univ., Research Organ. for Nano & Life Innovation, Waseda Univ.), M. Okada, and F. Shibasaki (Tokyo Metropolitan Institute of Medical Science)
- M02-3362 Amperometric Simultaneous Measurement of NO, CO, H<sub>2</sub>S and O<sub>2</sub> during Induced Focal Seizures Using a Quadruple Microsensor  
S. Seo and Y. Lee (Ewha Womans University)  
**ABSTRACT WITHDRAWN**
- M02-3363 Controlling Surface Oxygen Concentration of a Nanocarbon Film Electrode for Improvement of Target Analytes  
M. Takemoto (Nitto Denko Corporation, Tokyo Institute of Technology), T. Kamata, D. Kato (Nat. Inst. Adv. Ind. Sci. Technol. (AIST)), M. Hara (Tokyo Institute of Technology, RIKEN), and M. Haishi (Nitto Denko Corporation)  
**ABSTRACT WITHDRAWN**
- M02-3364 Highly Sensitive Raman Scattering Biosensor Based on Three-Dimensional Tungsten Disulfides  
N. Lee, M. H. Shin, E. Lee, S. H. Cho, H. Hwang (Pohang University of Science and Technology (POSTECH)), K. Cho (Pohang University of Science and Technology), J. K. Kim, and S. K. Hahn (Pohang University of Science and Technology (POSTECH))