

International Symposium on Micro-Nano Science and Technology 2016
Program

December 16 (Fri.)

13:00

Opening Remarks

13:15

Plenary Talk 1: Carbon nanotubes and graphene for transparent electrode and electron-blocking layer of solar cells

Shigeo Maruyama

The University of Tokyo

14:05

Plenary Talk II: Spreading heat with graphene in microsystems

Sebastian Volz¹, H. Han²

¹CNRS, France, ²Technische Universität, Germany

15:10

Special Lecture 1: Simple process design for polymer MEMS

Takaaki Suzuki

Gunma University

15:40

Special Lecture 2: Materials development for thin film lithium-ion batteries and electrical double layer capacitors

Hiroyuki Oguchi, K. Valdas, A. Sekiguchi, R. Maduka, Y. Murakami, H. Kuwano

Tohoku University

16:10

Special Lecture 3: Stepping out of the comfort zone

Norihisa Miki

Keio University

16:55

Ceremony

18:00

Banquet

International Symposium on Micro-Nano Science and Technology 2016

PROGRAM

December 17 (Sat.)

Plenary Talk

Bldg. 2 Rm 213

Oral

09:00 Plenary Talk III

Room:

Plenary Talk III: Control of excitonic processes in organic semiconductors aimed for high performance OLEDs and organic lasers

Chihaya Adachi

Kyushu University

Fluid Mechanics

Bldg. 2 Rm 213

Oral

10:00 SaA1-A-1

Room:

Visualization of temperature distributions in microchannels using fluorescence polarization imaging

Atsushi Suzuki, Chi-Hsuan Hsu, Kazuya Tatsumi, Reiko Kuriyama, Kazuyoshi Nakabe

Kyoto University

10:15 SaA1-A-2

Temporal relationship between pressure loss and boiling bubbles during flow boiling in a single micro channel

Hiroaki Iwama, Managu Tange

Shibaura Institute of Technology

10:30 SaA1-A-3

Molecular dynamics simulation of oxygen permeation properties in ionomer thin film on Pt surface

Yuya Kurihara, Takuya Mabuchi, Takashi Tokumasu

Tohoku University

10:45 SaA1-A-4

Stability of microdroplets based microsystems

Yusuke Izawa¹, Toshihisa Osaki², Koki Kamiya², Satoshi Fujii², Nobuo Misawa², Norihisa Miki¹

¹Keio University, ²Kanagawa Academy of Science and Technology, ³The University of Tokyo

11:00 SaA1-A-5

Lateral migration of a spherical particle in laminar square duct flows

Hiroshi Yamashita, Hiroyuki Shichi, Tomoaki Itano, Masako Sugihara-Seki

Kansai University

11:15 SaA1-A-6

Effect of pillar conductivity on the critical voltage of Cassie-to-Wenzel transition

Yu-Chung Chen, Kenichi Morimoto, Yuji Suzuki

The University of Tokyo

11:30 SaA1-A-7

Photoresponsive wettability switching on TiO₂-coated micro pillar array with different geometric overhang roofs

Taizo Kobayashi, Hironobu Maeda, Satoshi Konishi

Ritsumeikan University

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11:45 SaA1-A-8

Coarse-grained molecular dynamics study of chemical structure effects on shear properties of nanometer-thick lubricant films

Takayuki Kobayashi, Hedong Zhang, Kenji Fukuzawa, Shintaro Itoh
Nagoya University

Microelectromechanical Systems

Bldg. 2 Rm 212

Oral

10:00 SaA1-B-1

Room:

Design and fabrication of ionic liquid-based pressure sensor for evaluation of vascularization of micro-tissues

Yu Nakano, Yoshikazu Hirai, Ken-ichiro Kamei, Toshiyuki Tsuchiya, Osamu Tabata
Kyoto University

10:15 SaA1-B-2

A high sensitivity inverted t-shaped capacitive MEMS pressure sensor

Daiki Ono, Hiroaki Yamazaki, Yoshihiko Kurui, Ryunosuke Gando, Kei Masunishi, Yumi Hayashi
Toshiba Corporation

10:30 SaA1-B-3

Parylene-based MEMS gas sensor for high-sensitivity VOC detection with 3D electrode structure

Cheng-Han Yeh, Yuji Suzuki, Kenichi Morimoto
University of Tokyo

10:45 SaA1-B-4

Improvement of optical sensitivity for proximity and tactile combo sensor

Nao Umeki¹, Masanori Okuyama², Haruo Noma³, Takashi Abe¹, Masatuki Sohigawa¹
¹Niigata University, ²Osaka University, ³Ritsumeikan University

11:00 SaA1-B-5

Dielectric microactuator using dielectrophoretic force

Kensuke Otsuka, Eiji Iwase
Waseda University

11:15 SaA1-B-6

Design and characterization of cantilever-type piezoelectric MEMS microphones

Shota Nakagawa, Hirotaka Hida, Isaku Kanno
Kobe University

11:30 SaA1-B-7

Self-assembly of three-dimensional micro components by excluded-volume effect

Ryota Kawai, Hiroaki Suzuki
Chuo University

11:45 SaA1-B-8

Large area and highly densified microneedle-based electro tactile display

Mayuko Tezuka, Kei Ishimaru, Norihisa Miki
Keio University

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Open Forum

Poster

SaP-1

Room:

Measurement of thermal conductivity of HPT-processed bulk silicon

Shuichi Kawawaki, Sivasankaran Harish, Yoshifumi Ikoma, Yasuyuki Takata, Zenji Horita,

Masamichi Kohno

Kyushu University

SaP-2

Healing process behavior on electric field trapping of gold nanoparticles

Yuta Nakajima, Tomoya Koshi, Eiji Iwase

Waseda University

SaP-3

PDMS tube integrated with graphene sheet for flow pressure sensor

Nagisa Inoue, Hiroaki Onoe

Keio University

SaP-4

Effects of PEGylation on magnetic property of magnetic fluid coated with saccharides

Seiichi Sugimoto¹, Kazuo Yagi², Masataka Kubo³, Naoto Shinoda³, Tadashi Inaba³

¹Tokyo Metropolitan College of Industrial Technology, ²Tokyo Metropolitan University, ³Mie University

SaP-5

Existential states and effect of hydrogen on surface defects in silicon

Masaru Nakamura, Hayato Izumi, Shoji Kamiya

Nagoya Institute of Technology

SaP-6

Observation of thermophoresis in micro channel with thin-film electric heater

Sho Saita, Tetsuro Tsuji, Satoyuki Kawano

Osaka University

SaP-7

Cation-induced EHD flow control by applying electric field patterns

Fumika Nito, Kentaro Doi, Satoyuki Kawano

Osaka University

SaP-8

Fabrication and test of light-driven micromixer in microchannel flow

Ryosuke Kobayashi, Tomonori Yamasaki, Noboru Yamada, Tadachika Nakayama, Tsutomu

Takahashi

Nagaoka University of Technology

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PROGRAM

SaP-9

Perforation method by combining bubble cavitation and focusing shock waves

Keita Ichikawa¹, Shingo Maeda¹, Yoko Yamanishi²

¹Shibaura Institute of Technology, ²Kyushu University

SaP-10

Numerical simulation of nanofluid flow

Masanori Hashiguchi

Keisoku Engineering System Co., Ltd.

SaP-11

Reconfigurable pre-processing unit for miniaturized water quality monitor

Akira Watanabe^{1,2}, Yoshishige Endo², Ryo Miyake²

¹NCE Co. Ltd., ²University of Tokyo,

SaP-12

Development of microtube mass production device for microbial culture

Kazuma Fujimoto, Kazuhiko Higashi, Norihisa Miki

Keio University

SaP-13

A study of the quantum effect on the potential barrier for the hydrogen diffusion in metal using molecular simulation

Shohei Ikawa¹, Hiroki Nagashima², Shin-ichi Tsuda³, Takashi Tokumasu¹

¹Tohoku University, ²University of the Ryukyus, ³Kyushu University

SaP-14

Robust evaluation of diffusion coefficient against criterion of particle link for single molecule tracking algorithm

Reiji Motohashi¹, Itsuo Hanasaki¹, Yuto Ooi¹, Yu Matsuda²

¹Tokyo University of Agriculture and Technology, ²Nagoya University

SaP-15

Heat transfer characteristics of a two-phase microgap heat exchanger and temperature measurement by using temperature sensitive paint

Ryo Ueki, Yuya Suzuki, Manabu Tange

Shibaura Institute of Technology

SaP-16

Fundamental study on reaction between micro-glow corona and materials

Riki Miyakawa

Tokyo Metropolitan University

SaP-17

Heat flux measurement on engine inner wall and transient heat conduction analysis

Osamu Nakabeppu, Kazuhito Dejima, Yuto Nakamura, Keisuke Nagasaka, Tomohiro Tsuchiya

¹Meiji University, ²Meiji University

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PROGRAM

SaP-18

An analysis of proton transport in supported nafion nanofilms by molecular dynamics methods

Joji Aochi¹, Takuya Mabuchi², Takashi Tokumasu¹

¹Tohoku University, ²The University of Tokyo

SaP-19

Engineering directional heat flow using ballistic phonon transport in phononic nanostructures

Roman Anufriev¹, Aymeric Ramiere¹, Jeremie Maire¹, Masahiro Nomura^{1,2}

¹The University of Tokyo, ²PRESTO, JST

SaP-20

Mechanism of low friction of layered materials studied by all atom molecular dynamics

Maeda Tatsuya¹, Hitoshi Washizu^{1,2}

¹University of Hyogo, ²Kyoto University

SaP-21

Development of transporting and discharging EWOD devices

Akira Shiraishi, Kenji Suzuki, Hideaki Takanobu, Hirofumi Miura

Kogakuin University

SaP-22

Observation of mechanical stimulus effect on cell culture using magnetically-driven structures

Noriyuki Fukui¹, Kaori Kuribayashi-Shigetomi², Hiroaki Onoe³, Eiji Iwase¹

¹Waseda University, ²Hokkaido University, ³Keio University

SaP-23

Highly-sensitive and rapid detection of DNA bases using surface-enhanced raman spectroscopy with gold nanoparticle dimer array

Kohei Ikegami, Koji Sugano, Yoshitada Isono

Kobe University

SaP-24

Fabrication of collagen-silicone hybrid microtube by sacrificial etching of carbohydrate-glass

Shun Itai, Hiroaki Onoe

Keio University

SaP-25

Two dimensional droplet arrays with concentration gradient of sample without precise pipetting or pumping

Hiroki Yasuga, Norihisa Miki

Keio University

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SaP-26

Evaluation of the material properties due to phase transformation and low-temperature synthesis of the P-NIPAAm gels

Kazuo Yagi^{1,2}, Seiichi Sugimoto^{3,2}, Tadashi Inaba², Yuta Sakaguchi², Atsuya Ikeda², Ayumi Nakagawa²

¹Tokyo Metropolitan University, ²Mie University, ³Tokyo Metropolitan College of Industrial Technology

SaP-27

Fatigue evaluation using a glass-shape optical sensors system

Ryogo Horiuchi, Norihisa Miki
Keio University

SaP-28

Development of microfluidic cell-collection device

Ayumi Takahashi, Koya Murakami, Takumi Hiraiwa, Norihisa Miki, Noriko Hiroi, Akira Funahashi
Keio University

SaP-29

Development of self-heated cathode for thermally assisted reactive ion etching of minor metals

Gang Han, Yuki Murata, Daiki Okawa, Masayuki Sohawa, Takashi Abe
Niigata University

SaP-30

Wearable eye tracking device for motor learning study

Tomohito Ogasawara¹, Ryogo Horiuchi¹, Yasuto Tanaka², Norihisa Miki¹
¹Keio University, ²Neuro-Mathematics Laboratory

SaP-31

Remotely controlled micromachines driven by a laser-induced microbubble

Sho Kubota, Ryotaro Ihara, Shoji Maruo
Yokohama National University

SaP-32

Lithography technique using spatially controlled UV exposure

Hidetoshi Takahashi¹, Yun Jung Heo², Isao Shimoyama¹
¹The University of Tokyo, ²Kyung Hee University

SaP-33

A gelation method for monodisperse microbeads of various materials

Kazuhiko Higashi, Norihisa Miki
Keio University

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SaP-34

Mass production of three-dimensional ceramic micro components using a soft molding technique
Toshihiro Oba, Shoji Maruo
Yokohama National University

SaP-35

Observation of slurry behavior in ink reservoir of screen printing
Qing Ding, Keisuke Nagato, Yuki Yajima, Masayuki Nakao
The University of Tokyo

SaP-36

Omnidirectional microstereolithography using an optical fiber controlled by a robotic arm
Eisuke Komada, Taichi Ibi, Genki Ishibashi, Shoji Maruo
Yokohama National University

SaP-37

Micro grinding for channel-fabrication on quartz
Bo Hyun Kim, Pyeong An Lee, Seungman Jung
Soongsil University

SaP-38

The development of the actual usable improved dry electrode with micro-needles
Ryo Ishibashi, Yuta Kudo, Norihisa Miki
Keio University

SaP-39

Study of an energy harvester consisting of a laminated substrate integrated with thin film coil
Youichirou Suzuki¹, Hiroki Kuwano²
¹NIPPON SOKEN, INC., ²Tohoku University

SaP-40

Polymer-based disposable accelerometer for detecting the impact
Daigo Takahashi, Taiji Okano, Hiroaki Suzuki
Chuo University

SaP-41

Shape evaluation of a micro-volume sample chamber for NMR measurement
Takuma Hizawa¹, Masato Takahashi², Eiji Iwase¹
¹Waseda University, ²RIKEN

SaP-42

Cavitation induced by shock-microbubble interaction in a viscoelastic material
Ryota Oguri, Keita Ando
Keio University

Fluid Dynamics & Applications

Bldg. 2 Rm 213

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PROGRAM

Oral

- 15:00 SaP1-A-1 Room:
Enhancement of trapping range of plasmonic tweezers by thermophoresis around gold nanosphere dimer
Tetsuya Ogino, Kyosuke Yasuda, Ken Yamamoto, Masahiro Motosuke
Tokyo University of Science
-
- 15:15 SaP1-A-2
Experimental and theoretical investigation of small-size reactive plasma pump for water purification
Satoshi Uehara¹, Kazuma Ishihata², Hideya Nishiyama¹
¹Tohoku University, ²Formerly Tohoku University
-
- 15:30 SaP1-A-3
Mechanical variation of ink spreading property on nano papers
Daiki Mizumura, Itsuo Hanasaki, Yuto Ooi, Yoshiki Horikawa
Tokyo University of Agriculture and Technology
-
- 15:45 SaP1-A-4
Centrifuge-based fabrication of branched hydrogel fiber using θ -shaped glass tube
Keigo Nishimura¹, Nobuhito Mori¹, Yuya Morimoto¹, Shoji Takeuchi^{1,2}
¹The University of Tokyo, ²ERATO, JST

Micro/Nano Processing I

Bldg. 2 Rm 212

Oral

- 15:00 SaP1-B-1 Room:
Fabrication of nano-porous electrodes and its evaluation for electrical double layer capacitors
Yuki Murakami, Hiroyuki Oguchi, Hiroki Kuwano
Tohoku University
-
- 15:15 SaP1-B-2
Ultraprecision surface flattening of porous single-crystal silicon by diamond turning
Mehdi Heidari, Jiwang Yan
Keio University
-
- 15:30 SaP1-B-3
Molding of YSZ pillars by screen printing for anode of SOFC
Arata Sakai¹, Keisuke Nagato^{1,2}, Takumu Yamaguchi¹, Seigo Yoshino¹, Masayuki Nakao¹
¹The University of Tokyo, ²JST
-
- 15:45 SaP1-B-4
Press molding of Si-HDPE hybrid micro fresnel lenses for IR imaging
Ahmad Rosli Abdul Manaf¹, Tsunetoshi Sugiyama², Yan Jiwang¹
¹Keio University, ²Light for Wave Corporation

Electrofluidics

Bldg. 2 Rm 213

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Oral

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|---|----------|-------|
| 16:15 | SaP2-A-1 | Room: |
| Liquid flow driven by coulomb force on excessive electrical charges
Ryo Nagura, Kentaro Doi, Satoyuki Kawano
Osaka University | | |
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| 16:30 | SaP2-A-2 | |
| Measurement and theoretical study on electromotive force via ion-selective interface
Kentaro Doi, Takeo Yoshida, Shuto Onitsuka, Satoyuki Kawano
Osaka University | | |
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| 16:45 | SaP2-A-3 | |
| Experimental investigation of electrokinetic mobilities of colloidal particles using evanescent waves
Katsuaki Shirai
Kobe University | | |
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| 17:00 | SaP2-A-4 | |
| A study on enhancement of interfacial reaction by electrothermal flow
Motoki Hino, Ken Yamamoto, Masahiro Motosuke
Tokyo University of Science | | |
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| 17:15 | SaP2-A-5 | |
| Numerical analyses on electroosmotic flow in contraction and expansion channels
Hiroshige Kumamaru, Hidetoshi Hashimoto, Naohisa Takagaki
University of Hyogo | | |
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| 17:30 | SaP2-A-6 | |
| Measurement of pulsating EHD flow driven by AC electric fields
Ayako Yano, Kentaro Doi, Satoyuki Kawano
Osaka University | | |

Micro/Nano Processing II

Bldg. 2 Rm 212

Oral

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| 16:15 | SaP2-B-1 | Room: |
| Femtosecond laser reductive patterning using the mixed copper oxide and nickel oxide nanoparticles
Mizue Mizoshiri, Junpei Sakurai, Seiichi Hata
Nagoya University | | |
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| 16:30 | SaP2-B-2 | |
| Bonding process using a nanoporous gold sheet for high temperature electronics
Hiroshi Nishikawa ¹ , Kaori Matsunaga ¹ , Min-Su Kim ¹ , Mikiko Saito ² , Jun Mizuno ²
¹ Osaka University, ² Waseda University | | |
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| 16:45 | SaP2-B-3 | |
| Reduction behavior of CuO particles during Cu-to-Cu bonding
Tomokazu Sano
Osaka University | | |

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17:00 SaP2-B-4

Three-dimensional microstructure fabrication by combination of a paraffin polymer and a photo-curable silicone elastomer

Katsuo Mogi, Yuki Hashimoto, Takatoki Yamamoto
Tokyo Institute of Technology

17:15 SaP2-B-5

Characterization of transfer positioning accuracy on roll-type stamping transfer

Makoto Tokonami, Eiji Iwase
Waseda University

17:30 SaP2-B-6

Vertical assembly of micro components on a substrate using magnetic assembly method

Takuma Yamamoto, Minoru Fujii, Kanna Aoki
Kobe University

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PROGRAM

December 18 (Sun.)

Plenary Talk

Bldg. 2 Rm 213

Oral

09:00

Plenary Talk

Room:

Plenary Talk IV: State-of-the-art technologies for fabricating free-form microstructures

Jiwan Yan

Keio University

Nano/Micro Materials

Bldg. 2 Rm 213

Oral

10:00

SuA1-A-1

Room:

Mechanical properties of silicate glass thin structures

Takahiro Kozeki¹, Tatsuya Fujii², Shozo Inoue¹, Takahiro Namazu³

¹University of Hyogo, ²Akita Prefectural University, ³Aichi Institute of Technology

10:15

SuA1-A-2

Effect of tensile orientation on slip and fracture of (110) silicon at high temperature

Akio Uesugi, Yoshikazu Hirai, Toshiyuki Tsuchiya, Osamu Tabata

Kyoto University

10:30

SuA1-A-3

Microscale strain distributions of carbon fiber reinforced plastics by reconstructed multiplication moire method

Qinghua Wang, Shien Ri, Hiroshi Tsuda

National Institute of Advanced Industrial Science and Technology

10:45

SuA1-A-4

Numerical investigations of void growth in bi-modal micro-structure of BCC steel

Madhu Kiran Karanam¹, Anish Karmakar², Kaustav Barat³, Viswanath R Chinthapenta¹

¹Indian Institute of Technology Hyderabad, ²Indian Institute of Technology Kharagpur, ³CSIR-

National Aerospace Laboratory

11:00

SuA1-A-5

Optical characteristics of flat-top and dome-shape patterned photonic colloidal crystals

Noriyuki Suzuki

Keio University

11:15

SuA1-A-6

LSM/YSZ cathode aligned by magnetic field for solid oxide fuel cell

Seigo Yoshino¹, Keisuke Nagato^{1,2}, Takumu Yamaguchi¹, Arata Sakai¹, Masayuki Nakao¹

¹The University of Tokyo, ²PRESTO, JST

International Symposium on Micro-Nano Science and Technology 2016

PROGRAM

11:30 SuA1-A-7
Improvement on adhesion strength of (AlTi)N thin film to polyimide substrate for flexible thermistor
Hitoshi Inaba¹, Noriaki Nagatomo¹, Nobuyuki Shishido², Shoji Kamiya²
¹Mitsubishi Materials Corporation, ²Nagoya Institute of Technology

11:45 SuA1-A-8
Integrated shear strain gauge for parallel tensile-mode fatigue testing device
Kanji Yasuda, Akio Uesugi, Yoshikazu Hirai, Toshiyuki Tsuchiya, Osamu Tabata
Kyoto University

Molecular & Cell Biology

Bldg. 2 Rm 212

Oral

10:00 SuA1-B-1 Room:
Fabrication of bilayer cell sheet structures with direct cross-layer cell-cell interaction using the mesh culture technique
Kai Yamada, Kennedy Okeyo, Osamu Kurosawa, Hidehiro Oana, Masao Washizu
The University of Tokyo

10:15 SuA1-B-2
Sensing system for contractile properties of human cardiomyocyte tissues
Yuya Morimoto¹, Saori Mori^{1,2}, Fusako Sakai^{1,2}, Shoji Takeuchi^{1,2}
¹The University of Tokyo, ²ERATO, JST

10:30 SuA1-B-3
Optical mapping of epigenetic information along intact chromatin fibers isolated from single cells in a microchannel
Tomohiro Takahashi¹, Kennedy Okeyo¹, Masao Washizu¹, Jun Ueda², Hidehiro Oana¹
¹The University of Tokyo, ²Chubu University

10:45 SuA1-B-4
Quantification of the effect of shear stress on the differentiation of SH-SY5Y cells
Matthew Higashionna, Ayumi Takahashi, Takumi Hiraiwa, Norihisa Miki, Noriko Hiroi, Akira Funahashi
Keio University

11:00 SuA1-B-5
Design of reaction field with high sensitivity and rapid reaction for a diagnosis application
Yuma Suzuki, Tetsuhide Shimizu, Ming Yang
Tokyo Metropolitan University

11:15 SuA1-B-6
Enhancement of fluorescence by forming spheroids for a portable odorant sensor
Yusuke Hirata¹, Shotaro Yoshida¹, Seiji Tabata¹, Eunryel Nam^{1,2}, Yuya Morimoto¹, Shoji Takeuchi^{1,2}
¹The University of Tokyo, ²ERATO, JST

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11:30 SuA1-B-7
Biofouling of micro dialysis device made of titanium for medium-sized laboratory animals
Takashi Ota¹, Naoya To¹, Yoshihiko Kanno², Norihisa Miki¹
¹Keio University, ²Tokyo Medical University

11:45 SuA1-B-8
Blood pressure pulse wave measurement using a wristband type device with 3-axis force sensor
Tetsuji Dohi, Kohei Waki
Chuo University

Open Forum

Poster

SuP-1

Room:

Piezoresistance effect of VLS-synthesized core/shell-SiC nanowires
Shinya Nakata¹, Daiki Imoto¹, Koji Sugano¹, Feancesca Rossi², Alois Lugstein³, Yoshitada Isono¹
¹Kobe University, ²The IMEM-CNR Institute, ³Vienna University of Technology

SuP-2

Near infrared optical absorption property of gold nanoparticle aggregates for laser wavelength measurement
Shuji Joya, Naoyuki Arai, Yuki Tanaka, Koji Sugano, Yoshitada Isono
Kobe University

SuP-3

Synthesis of gold nanoparticles on microfluidic device with flow rate control
Yu Tanabe, Keisuke Yamauchi, Mao Hamamoto, Hiromasa Yagyu
Kanto Gakuin University

SuP-4

Synthesis of photochromic nano particles and its structure
Shuhei Inoue, Toshiki Matsui, Yukihiro Matsumura
Hiroshima University

SuP-5

Novel mixing technique with three-dimensional micro channel
Ayano Otsubo¹, Nobuhiro Tukada¹, Yoshihiro Nagaoka¹, Norimasa Minamoto², Masahito Ito²
¹Hitachi, Ltd., ²Hitachi High-Tech Science Corporation

SuP-6

Effect of time marching method on data accuracy in dissipative particle dynamics
Toru Yamada
Nagoya Institute of Technology

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SuP-7

CFD simulation of extremely low Reynolds number flows in microscopic straight and tapered tube

Toshihide Fujikawa¹, Ryu Egashira², Shigeo Fujikawa³, Tetsuya Kodama⁴, Kazu Takeda⁴

¹Miyakonojo College, National Institute of Technology, ²Fukuoka Institute of Technology,

³Hokkaido University, ⁴Tohoku University

SuP-8

Blood separating device without energy resource for implantable applications

Hinako Otsuki, Takashi Ota, Toh Naoya, Norihisa Miki

Keio University

SuP-9

Micro-electrohydrodynamic pump of non-uniform structure for cell culturing channel

Tasuku Sato¹, Shingo Maeda¹, Yoko Yamanishi²

¹Shibaura Institute of Technology, ²Kyushu University

SuP-10

Measurement of thermophoretic mobility using a micro-gap soot cell

Tetsuro Tsuji, Kosuke Kozai, Satoyuki Kawano

Osaka University

SuP-11

A study on pressure-driven gas transport through micro-/nanoscale porous media

Yoshiaki Kawagoe¹, Shigeru Yonemura²

¹Tohoku University, ²Tohoku University

SuP-12

Flow analysis in micro pulsating heat pipes by high-speed imaging

Yutaro Abe, Takuya Kobayashi, Koichi Isomura, Yuta Yoshimoto, Ikuya Kinefuchi, Shu Takagi

The University of Tokyo

SuP-13

Inhibition of self-peeling off in the drying of particulate films by cellulose nanofibers

Yuto Ooi¹, Itsuo Hanasaki¹, Daiki Mizumura¹, Yu Matsuda²

¹Tokyo University of Agriculture and Technology, ²Nagoya University

SuP-14

ReaxFF-based interfacial thermal conductance calculation of silica-silica interface

Masanao Obori¹, Cannon James¹, Nobuhiro Shinohara², Junichiro Shiomi¹

¹Tokyo University, ²Asahi Glass Co., Ltd.

SuP-15

Boiling bubble growth in control of nucleation on a MEMS heat transfer surface

Ryota Inoue, Manabu Tange

Shibaura Institute of Technology

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SuP-16

Observation of water adsorption/desorption behaviour in vertically aligned single-walled carbon nanotube films using Raman spectroscopy

Koji Isogai¹, Sivasankaran Harish¹, Yasuyuki Takata¹, Yoshikazu Homma², Shigeo Maruyama³,
Shohei Chiashi³

¹Kyushu University, ²Tokyo University of Science, ³The University of Tokyo

SuP-17

Analysis of water microdroplet condensation on silicon surfaces by environmental scanning electron microscopy

Takuya Honda¹, Kenya Fujimoto¹, Yuta Yoshimoto¹, Katsuo Mogi², Ikuya Kinefuchi¹, Yasuhiko Sugii²

¹The University of Tokyo, ²Tokyo Institute of Technology

SuP-18

Simulations of gas transport with surface diffusion in nanoporous materials

Takuma Hori, Yuta Yoshimoto, Shu Takagi, Ikuya Kinefuchi
The University of Tokyo

SuP-19

Improved thermoelectric harvester design by using nano-structuring

Peter Zimmermann¹, Ryoto Yanagisawa¹, Masahiro Nomura^{1,2}

¹The University of Tokyo, ²PRESTO, JST

SuP-20

Development of water surface mobile robot inspired by water striders
--- Optimization of water repellent legs-

Richard Waki Ichinose, Kenji Suzuki, Hideaki Takanobu, Hirofumi Miura
Kogakuin University

SuP-21

Study of highway surface monitoring using acceleration sensor

Sana Talmoudi¹, Yoshio Takaeda², Tetsuya Kanada², Hiroki Kuwano¹

¹Tohoku University, ²toor inc

SuP-22

Microfiber-shaped hepatic tissue with microvascularized network

Ryo Sato, Hiroaki Onoe
Keio University

SuP-23

Evaluation of PCR condition in 3D-shaped microchamber device

Tomoyuki Masuda¹, Taiji Okano¹, Katuyuki Shiroguchi², Hiroaki Suzuki¹

¹Chuo University, ²RIKEN

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SuP-24

Anisotropic optical flow induction using wedge-shaped plasmonic structures

Masato Okuno, Reo Kometani, Etsuo Maeda

The University of Tokyo

SuP-25

A proposal for the new antidepressant treatment by means of microbubble bathing

Toshihiro Haniu¹, Hiroaki Hasegawa¹, Shun Sakai², Yutaka Masuda²

¹Utsunomiya University, ²Akita University

SuP-26

3D assembly of fiber-shaped tissues using micro pillar array devices

Kaori Furuike¹, Yuya Morimoto¹, Shotaro Yoshida¹, Nobuhito Mori¹, Shoji Takeuchi^{1,2}

¹The University of Tokyo, ²ERATO, JST

SuP-27

Micropatterning and assembly of primary neurons by mobile microplates

Shotaro Yoshida¹, Midori Negishi-Kato^{1,2}, Shoji Takeuchi^{1,2}

¹The University of Tokyo, ²ERATO, JST

SuP-28

Development of portable microfluidic system for trapping floating cells

Naoki Furuya¹, Takuya Shimagami², Kyohei Terao¹, Hidekuni Takao¹, Fusao Shimokawa¹, Kazuya Akimitsu³

¹Kagawa University, ²Ehime University, ³Kagawa University, ⁴Gunma University, ⁵PRESTO, JST

SuP-29

High temperature creep forming technique of single crystal silicon thin film for 3D MEMS tactile sensors

Kensuke Yamamoto, Satoshi Nakata, Koji Sugano, Yoshitada Isono

Kobe University

SuP-30

Miniaturization of chemical oscillator and its size dependency

Junya Wada, Hiroaki Suzuki, Taiji Okano

Chuo University

SuP-31

Development of a capacitive 3-axis force sensor with liquid metal

Tatsuho Nagatomo, Takuro Nakadegawa, Norihisa Miki

Keio University

SuP-32

Viscosity measurement based on droplet vibration: effect of the droplet size

Thanh-Vinh Nguyen¹, Kiyoshi Matsumoto², Isao Shimoyama¹

¹The University of Tokyo, ²Toyo University

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SuP-33

High precision drilling of small through holes into sapphire using a nanosecond pulsed laser

Nozomi Takayama¹, Shouhei Asaka², Jiwang Yan¹

¹Keio University, ²Shinkosha Co., Ltd.

SuP-34

Improvement of the electrostatic ink-jet micro 3D food printer utilizing thermal control mechanism

Kensuke Takagishi, Yuya Suzuki, Shinjiro Umezu

Waseda University

SuP-35

Finite element analysis on micro electrochemical machining

Dahai Mi

Keisoku Engineering System Co., Ltd.

SuP-36

Upward growth correction on the 3-D nanostructure fabrication by focused-ion-beam chemical vapor deposition

Mizue Sekine, Etsuo Maeda, Reo Kometani

The University of Tokyo

SuP-37

Three-dimensional multi-scale microfabrication using a microstereolithography with optical fibers

Taichi Ibi, Eisuke Komada, Shoji Maruo

Yokohama National University

SuP-38

Fundamental research of energy harvesting using a ferromagnetic powder

Haruhiko Shirai¹, Hiromichi Mitamura¹, Takuma Noda², Nobuaki Arai¹, Kazuyuki Moriya¹

¹Kyoto University, ²The Institute of Statistical Mathematics

SuP-39

Optical analysis and first-principles study on electrical properties of strained bismuth telluride thin films on a flexible substrate

Takuya Inamoto, Kyouosuke Kusagaya, Masayuki Takashiri

Tokai University

SuP-40

Study of selective binding using hydrophilic/hydrophobic patterning for self-assembly

Kazuki Kimura, Taiji Okano, Hiroaki Suzuki

Chuo University

SuP-41

Micro pillar structures with block copolymer layer on the side walls to prevent cell adhesion

Kentaro Noda, Kayoko Hirayama, Isao Shimoyama

The University of Tokyo

Energy Harvesting

Bldg. 2 Rm 213

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Oral

15:00 SuP1-A-1 Room:
Fabrication of piezoelectric vibration energy harvester using coatable poly vinylidene difluoride and its characterization
Hiroki Takise, Yanpeng Chen, Masato Suzuki, Tomokazu Takahashi, Seiji Aoyagi
Kansai University

15:15 SuP1-A-2
Potential of miniature butterfly wind turbine for application to energy harvesting
Yutaka Hara¹, Kazuya Hori¹, Makoto Kawanishi¹, Yuya Yamanaka¹, Shu Yamamoto¹, Shigeo Yoshida²
¹Tottori University, ²Kyushu University

15:30 SuP1-A-3
Improved model of MEMS rotational electret energy harvester
Mitsuru Adachi, Yuji Suzuki
The University of Tokyo

15:45 SuP1-A-4
Modeling of liquid-crystal-enhanced electrostatic vibration generator
Kasidis Kittipaisalsilpa, Yuji Suzuki
The University of Tokyo

Biomedical & Diagnostic Applications

Bldg. 2 Rm 212

Oral

15:00 SuP1-B-1 Room:
3D-printed sample concentrator based on ion concentration polarization
Gyounggeun Park, Yuki Hashimoto, Katsuo Mogi, Takatoki Yamamoto
Tokyo Institute of Technology

15:15 SuP1-B-2
Development of sensitive optical detection system of particles using heterodyne interferometry
Daiki Sakai, Ken Yamamoto, Masahiro Motosuke
Tokyo University of Science

15:30 SuP1-B-3
Visualization of venous thrombus initial formation using microchannel flow
Hitoshi Shirouzu, Yusuke Yamamoto, Shinnosuke Noguchi, Kazuya Tatsumi, Reiko Kuriyama, Kazuyoshi Nakabe
Kyoto University

15:45 SuP1-B-4
Microfluidic perfusion of grooved hydrogel μ tubes
Minghao Nie¹, Shoji Takeuchi^{1,2}
¹University of Tokyo, Tokyo, ²ERATO, JST

Thermal Engineering

Bldg. 2 Rm 213

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Oral

- 16:15 SuP2-A-1 Room:
In-situ observation of micro droplet motion in micro thermal diode
Koichi Sato, Takashiro Tsukamoto, Shuji Tanaka
Tohoku University
-
- 16:30 SuP2-A-2
Thermal resistance at an organic-inorganic materials interface
Shota Hama, Hikaru Kuriyama, Laurent Tranchant, Tomohide Yabuki, Koji Miyazaki
Kyushu Institute of Technology
-
- 16:45 SuP2-A-3
Spectral phonon mean free path and thermal conductivity in 1D phononic crystals
Aymeric Ramiere
The University of Tokyo
-
- 17:00 SuP2-A-4
A quantum effect of proton on its diffusion path in solid oxide membrane
Hiroki Nagashima¹, Takashi Tokumasu²
¹University of the Ryukyus, ²Tohoku University
-
- 17:15 SuP2-A-5
Enhancement of thermal properties of silica thin films due to long range surface phonon-polaritons
Laurent Tranchant¹, Jose Ordonez-Miranda², Taihei Matsumoto¹, Sebastian Volz³, Koji Miyazaki¹
¹Kyushu Institute of Technology, ²CNRS, Université de Poitiers, ISAE-ENSMA, ³CNRS, Centrale-Supélec, Université Paris-Saclay
-
- 17:30 SuP2-A-6
Thermophoretic separation of dispersed particles by networked micro-separators
Sohei Matsumoto¹, Shinya Watanabe², Naoki Ono³
¹National Institute of Advanced Industrial Science and Technology, ²Ibaraki University, ³Shibaura Institute of Technology

Micro/Nano System Design

Bldg. 2 Rm 212

Oral

- 16:15 SuP2-B-1 Room:
Conversion of external light signal into mechanical motion of microcomponent using volvox
Moeto Nagai, Takahiro Hirano, Takayuki Shibata
Toyohashi University of Technology
-
- 16:30 SuP2-B-2
Small suction system for robotic hands with fluid-filled micro suction-controller array
Satoshi Nishita, Hiroaki Onoe
Keio University

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16:45 SuP2-B-3

Voltage and current condition on self-healing metal wire

Tomoya Koshi, Eiji Iwase

Waseda University

17:00 SuP2-B-4

Gravimetric calibration method for ultra-low flow measurement

Kar-Hooi Cheong, Ryouji Doihara, Takashi Shimada, Yoshiya Terao

National Institute of Advanced Industrial Science and Technology (AIST)

17:15 SuP2-B-5

3D printed microfluidic platform for non-invasive smart-agriculture sample collection

James A. Nguyen^{1,2}, Wojciech P. Bula², Ryo Miyake²

¹University of Arizona, ²The University of Tokyo

17:30 SuP2-B-6

Fatigue assessment by electroencephalogram measured with candle-like dry micro-needle electrodes

Yuta Kudo, Norihisa Miki

Keio University
