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TECHNICAL PROGRAM

Sunday, 19 November

ENEOS Hall, Bldg. 3-s

14:00-17:20 30th Anniversary Symposium

Moderators:

H. Nakajima, *Waseda Univ.*
Y. Kokubun, *Yokohama National Univ.*

Greeting Remarks:

14:00 Kazuo Hotate, *Toyota Tech. Inst.*
President of The Japan Society of Applied Physics

AS-1 30 years of Microoptics Conference.....4

14:10 H. Nakajima, *Waseda Univ.*

AS-2 VCSEL and microlens array: parallel microoptics world.....6

14:50 K. Iga, *Tokyo Inst. Tech.*

Break (15:30-15:50)

AS-3 50 years of fibers and integrated optics.....8

15:50 Y. Kokubun, *Yokohama National Univ.*

AS-4 Photonics polymers for fiber and display.....10

16:30 Y. Koike, *Keio Univ.*

17:10 Closing Remarks by the Moderators

Atrium, Bldg. 3

17:30-19:00

Get Together Party

Free of Charge

MoC: H. Shoji, *Sumitomo Electric Ind., Ltd.*

Drinks and Light Meals

♪ Light Music ♪

Performed by

Hirochika Nakajima (*Waseda Univ.*): Vocal
Okiihiro Sugihara (*Utsunomiya Univ.*): Vocal
Genichi Hatakoshi (*Waseda Univ.*): E-Piano
Kenichi Iga (*Tokyo Inst. Tech.*): Bass

Monday, 20 November

Convention Hall, Bldg. An

9:00-9:15 Opening Remarks

Conference Co-chairs:

S. Iwamoto, *Univ. Tokyo*
S. Yamashita, *Univ. Tokyo*

Welcome Address

Teruo Fujii, *Director General, IIS, Univ. Tokyo*

9:15-11:45 Plenary Session

Chairs: S. Iwamoto, *Univ. Tokyo*
S. Yamashita, *Univ. Tokyo*

PL-1 Progress in quantum dots for advanced photonics.....14

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PL-2 The multifaceted world of photonic crystal fibres.....16

9:50 P. Russell, *Max Planck Institute for the Science of Light*

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H. Kanamori, *Sumitomo Electric Ind., Ltd.*

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S. Ura, *Kyoto Inst. Tech.*

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- B-5** Proposal of Si waveguide optical isolator based on nonreciprocal TE-TM mode conversion using magneto-optical phase shift for TM mode.....56
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2F-Foyer, Bldg. An

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H. Takahashi, *Sophia Univ.*

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- P-102 Medium-range propagation experiment using optical duplicate system.....338**
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¹Faculty of Information and Telecommunication Engineering, Tokai University, ² Faculty of Engineering, Tokai University, ³Japan Women's University
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- P-104 Hybrid refractive-diffractive spectrum-splitting module as a full-spectrum concentrator.....342**
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- P-105 Enlarging acceptance angle of a planar solar concentrator with a V-groove array.....344**
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- P-106 Pressure dependence of Brillouin frequency shift in plastic optical fibers.....346**
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- PD-5 Compensation of optical aberration for improvement of image quality in virtual-phase-conjugation based optical tomography.....358**
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- PD-6 Enhanced optical absorption in nanowires over a desire range of wavelengths.....360**
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- PD-7 Boronic acid-functionalized magnetic nanocomposites for an efficient extraction of dopamine molecules and their detection using fluorescent polydopamine.....362**
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- PD-8 Distance measurement using free space optics.....364**
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Break (15:00-15:15)

Convention Hall, Bldg. An

15:15-17:00 Session E: Photonic Crystals and Nanostructure
Chairs: R. Chen, *Univ. Texas at Austin*
K. Kishino, *Sophia Univ.*

- E-1 Photonic crystal Fano lasers and Fano switches (Invited)...88**
15:15 J. Mork, Y. Yu, D. Bekele, K. S. Mathiesen, T. S. Rasmussen, E. Semenova, L. Ottaviano, A. Sakanas, and K. Yvind, *Technical University of Denmark*
- E-2 A photonic crystal nanocavity with a quantum dot active region embedded by MBE regrowth.....90**
15:45 Q. H. Vo¹, Y. Ota², K. Watanabe², T. Kageyama², S. Iwamoto^{1,2}, and Y. Arakawa^{1,2}, ¹Institute of Industrial Science, Univ. of Tokyo, ²NanoQuine, Univ. of Tokyo
- E-3 Lasing characteristics of intermixed highly-stacked quantum dot structure by ion implantation for wavelength-manipulated light sources.....92**
16:00 S. Matsui¹, Y. Akashi¹, S. Isawa¹, A. Matsumoto², K. Akahane², Y. Matsushima¹, H. Ishikawa¹, and K. Utsuka¹, ¹Waseda University, ²National Institute of Information and Communications Technology
- E-4 Experimental demonstration of polarization beam splitter based on auto-cloning photonic crystal.....94**
16:15 K. Yajima¹, T. Kawashima², T. Iijima², T. Chiba², S. Kawakami², and H. Takahashi¹, ¹Sophia University, ²Photonic Lattice, Inc.

- E-5 Bragg grating coupled high Q factor ring resonator using LSCVD deposited Si₃N₄ film.....96**
16:30 X. Cheng and S. Yokoyama, *Kyushu University*
- E-6 New method for development of fused silica fibres with freeform nanostructured gradient index core.....98**
16:45 R. Buczynski^{1,2}, R. Kasztelanic^{1,2}, A. Anuszkiewicz¹, A. Filipkowski¹, G. Stepniewski¹, D. Pysz¹, B. Siwicki¹, R. Stepień¹, and M. Klimczak¹, ¹Department of Glass, Institute of Electronic Materials Technology, ²Faculty of Physics, University of Warsaw

Break (17:00-17:15)

Presentation Room, Bldg. S

17:15-18:15 Microconcert

The 18th Microconcert

Machida Philharmony Baroque Ensemble (MPB)

Program

- # J. S. Bach: "Brandenburg Concerto" No. 3
A. Vivaldi: "Autumn" from Violin Concertos "The Four Seasons" Violin Solo: Takako Yoshii
G. F. Händel: "Ombra mai fu" Vocal: Hirochika Nakajima
E. Elgar: "Serenade"
B. Britten: "Simple Symphony"



Members

Chair : Prof. Kenichi Iga
Solo Concert Mistress and Coach: Takako Yoshii
Secretariat : Kaeko Fujii
Stage Manager : Akio Yoshii
Violin : Takako Yoshii, Kaeko Fujii, Tomoko Iga, Sanae Konno, Shoko Suzuki, Mizuho Okada, Mizue Hoshi, Mariko Furuta, Yoshikazu Karasawa, Michiko Hoshijima, Erika Masuzawa, Akiko Maehara
Viola : Yoko Miyazaki, Katsumi Mori, Yumi Matsubayashi, Reiko Araki
Cello : Mitsuko Nagahama, Kazutaka Okasaka, Masamichi Ishikawa
Contrabass : Kenichi Iga
Cembalo : Naomi Hanzawa.

2F-Foyer, Bldg. An

18:15-19:45 Conference Party

Wednesday, 22 November

Convention Hall, Bldg. An

9:00-10:30 Session F: Optical Materials and Applications
Chairs: D. Iannuzzi, *Vrije Univ. Amsterdam*
K. Hamamoto, *Kyushu Univ.*

- F-1 Surface functionalization by femtosecond lasers and its ultrafast formation dynamics (Invited).....102**
9:00 C. Guo, *University of Rochester*
- F-2 Consideration of equilibrium condition in Shockley-Queisser limit for solar cell efficiency.....104**
9:30 G. Hatakoshi¹ and K. Iga², ¹Waseda University, ²Tokyo Institute of Technology

- F-3** **Narrow-band plasmonic thermal emitter using plasmonic nanochannel structure.....106**
9:45 Z. Wang, J. K. Clark, Y.-L. Ho, and J.-J. Delaunay, *School of Engineering, The University of Tokyo*
- F-4** **Independent drive of integrated multicolor (RGBY) micro-LED array using regularly arrayed InGaN based nanocolumns.....108**
10:00 N. Sakakibara¹, K. Narita¹, T. Oto¹, and K. Kishino^{1,2},
¹Department of Applied Sciences and Engineering, *Sophia University*, ²Sophia Nanotechnology Research Center, *Sophia University*
- F-5** **GaN-based vertical-cavity surface-emitting lasers operating at high temperature.....110**
10:15 T.-C. Chang, S.-Y. Kuo, J.-T. Lian, K.-B. Hong, T.-C. Lu, and S.-C. Wang, *National Chiao Tung University*

Break (10:30-10:45)

10:45-12:30 Session G: Microoptics for Imaging

Chairs: Z. He, *Shanghai Jiao Tong Univ.*
K. Kuroda, *Utsunomiya Univ.*

- G-1** **MEMS based micromirror arrays (Invited).....114**
10:45 H. Hillmer, A. Tatzel, B. Al-Qargholi, M. M. Khan, and S. Akhundzada, *University of Kassel*
- G-2** **Three-dimensional all-fluidic imaging systems.....116**
11:15 D. Kopp, T. Brender, A. Dorn, L. Lehmann, and H. Zappe, *University of Freiburg*
- G-3** **Biomimetic optical systems - strategies for miniaturization of optics.....118**
11:30 R. Voelkel, *SUSS MicroOptics SA*
- G-4** **Electro-optic spatial light modulator/deflector using multi-stage polarization-reversed structure.....120**
11:45 Y. Hayashi¹, T. Inoue¹, H. Murata¹, A. Sanada¹, M. Okazaki², M. Ishino³, and K. Yamamoto³, ¹Graduate School of Engineering Science, *Osaka University*, ²SCREEN Holdings Co., Ltd., ³Photon Pioneers Centre, *Osaka University*
- G-5** **Imaging of topologically protected elastic mode in silica 1D phononic crystal via photoelastic effect.....122**
12:00 I. Kim¹, S. Iwamoto^{1,2}, and Y. Arakawa^{1,2}, ¹IIS, *University of Tokyo*, ²NanoQuine, *University of Tokyo*
- G-6** **Terahertz wave beam steering by optical phase control.....124**
12:15 Y. Zhou, G. Sakano, K. Tsugami, H. Kanaya, and K. Kato, *Kyushu University*

Lunch (12:30-13:30)

13:30-15:15 Session H: Microoptics for Sensing

Chairs: H. Hillmer, *Univ. Kassel*
K. Maru, *Kagawa Univ.*

- H-1** **Opto-mechanical ferrule-top devices in life science research (Invited).....128**
13:30 D. Iannuzzi, *Vrije Universiteit Amsterdam*
- H-2** **Ultrasensitive fiber-optic refractive index sensor based on multimode interference with fiber-loop technique.....130**
14:00 M. Naora, S. Taue, and H. Fukano, *Okayama University*
- H-3** **Sensing the earth with micro-optics (Invited).....132**
14:15 Z. He¹, Q. Liu¹, J. Chen¹, and T. Tokunaga², ¹Shanghai Jiao Tong University, ²The University of Tokyo
- H-4** **Detection of world's shortest hot spots in silica and plastic optical fibers by slope-assisted Brillouin optical correlation-domain reflectometry.....134**
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- H-5** **Mach-Zehnder interferometer with Fabry-Perot cavities in silicon-on-insulator for biosensing.....136**
15:00 M. Mendez-Astudillo¹, H. Okayama^{1,2}, and H. Nakajima¹,
¹Waseda University, ²Oki Electric Industry Co., Ltd.

Break (15:15-15:30)

15:30-16:30 Postdeadline Session

Chairs: O. Sugihara, *Utsunomiya Univ.*
H. Takahashi, *Sophia Univ.*

- PD-1** **Metasurface-based ultra-thin circular polarization analyzer integrated with semiconductor photodetectors.....350**
15:30 J. Park and K. Yu, *KAIST*
- PD-2** **Compact structured-light projector for 3D surface profiling.....352**
15:45 P. Zhao, P.-H. Cu-Nguyen, and H. Zappe, *University of Freiburg*
- PD-3** **Optimizing the design of trefoil phase plates for wavefront coding.....354**
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- PD-4** **Experimental observation of depolarized GAWBS in partially uncoated optical fibre.....356**
16:15 N. Hayashi, S. Y. Set, and S. Yamashita, *The University of Tokyo*

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16:30-16:45 Award Ceremony

16:45-17:00 Closing Remarks

Program Co-chairs:
O. Sugihara, *Utsunomiya Univ.*
H. Takahashi, *Sophia Univ.*