

## November 11<sup>th</sup> (Mon.)

Venue: TOGO-KINENKAN

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10:10            **Opening**

**[Complimentary Address]**

Toyohiko Yatagai  
( Former President of SPIE )

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**Plenary Session**

10:25        01    **[Plenary] Integrated Photonics for Sensing, Interconnects and Computing with Artificial Intelligence and Machine Learning Applications**

Ray T. Chen  
( University of Texas, Austin )

11:00        02    **[Plenary] Internet Civilization and the Role of Optical Technology**

Jun Murai  
( Keio University )

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**Session 1 Sensor**

11:35        03    **[Invited] Optical Fiber Bundles for Linear and Angular Displacement Measurement**

Joseba Zubia<sup>1</sup>, Gorka Zubia<sup>1</sup>, Josu Amorebieta<sup>1</sup>, Gotzon Aldabaldetrekua<sup>1</sup>, Gaizka Durana<sup>1</sup>  
( 1.University of the Basque Country )

11:55        04    **[Invited] Applications of Plastic Optical Fiber in Sensors for Oil & Gas, Electric Power, and Biotechnology Sectors**

Marcelo Martins Werneck<sup>1</sup>, Juan David Lopez Vargas<sup>1</sup>, Paulo Henrique Silva Pinto<sup>1</sup>, Reegina Celia Silva Barros Allil<sup>1</sup>  
( 1.Universidade Federal do Rio de Janeiro )

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**Lunch (buffet style)**

at TOGO-KINENKAN on the 3rd floor “Juko” and 1st floor “Kagura”

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**Session 2 Sensor**

13:30        05    **[Invited] Polymer Optical Fibre Sensing for Challenging Environments**

Patricia Scully  
( University of Galway )

13:50        06    **Evaluation of POF Functionalization for the Detection of Escherichia Coli in Water Samples**

Stella Ricardo Santos<sup>1</sup>, Priscilla Braga Antunes Bedor<sup>1</sup>, Marco Antônio Lemos Miguel<sup>1</sup>, Regina Célia Silva Barros Allil<sup>1</sup>, Marcelo Martins Werneck<sup>1</sup>  
( 1.Federal University of Rio de Janeiro )

14:05        07    **Motion Monitoring via Cross-Coupling Between Soft and Hard POF Using Deep Learning**

Jan Kallweit<sup>1</sup>, Mark Pätzel<sup>1</sup>, Fabian Köntges<sup>1</sup>, Robert Kowal<sup>2</sup>, Nadeem Shah<sup>2</sup>,

Thomas Gries<sup>1</sup>  
( 1.Institut für Textiltechnik of RWTH Aachen University, 2.Otto von Guericke University )

**14:20 08 Femtosecond Laser Inscribed CYTOP Polymer Optical Fiber FBG Implants for Temperature Sensing of the Brain**

Kyriacos Kalli<sup>1</sup>, Kunyang Sui<sup>2,3</sup>, Andreas Ioannou<sup>1</sup>, Marcello Meneghetti<sup>2,3</sup>, Guanghui Li<sup>3</sup>, Rune W. Berg<sup>3</sup>, Christos Markos<sup>2</sup>  
( 1.Cyprus University of Technology, 2.Technical University of Denmark, 3.University of Copenhagen )

**14:35 09 Needle-Sized Ultrafine Disposable Endoscope Using Graded-Index Plastic Optical Fiber**

Ikko Koike<sup>1</sup>, Hiromasa Yamashita<sup>3</sup>, Kenta Muramoto<sup>2</sup>, Masaya Nakamura<sup>1</sup>, Yasuhiro Koike<sup>2</sup>  
( 1.Department of Orthopaedic Surgery, School of Medicine, Keio University, 2.Keio Photonics Research Institute, Keio University, 3.Air Water Inc. )

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**15:00 Social Program**

Japanese Garden Tour at TOGO-KINENKAN and Prayers at TOGO Jinja (shrine)

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**16:30 Poster Session**

at TOGO-KINENKAN on the 3rd floor “Juko”

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**18:00 Conference Dinner**

at TOGO-KINENKAN on the 4th floor “Tensho”

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**November 12<sup>th</sup> (Tue.)**

**Venue: Keio University Mita Campus North Bldg. ground floor**

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**Session “Welcome to Keio University”**

- Keio’s Initiatives for AI Technology -

**9:30 S-01 Welcome Address**

Masayuki Amagai  
( Vice President, Keio University )

**9:40 S-02 [Guest talk]**

Yukiko Shinozuka  
( Senior Product Manager, AI Team, Microsoft )

**10:00 S-03**

Nobuyuki Yamasaki  
Keio University

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**10:10 S-04**

Yasuhiro Koike  
Keio University

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**Session 3 Datacom**

**10:20 10 [Invited] High-Speed Optical Transmission Technologies for In-Vehicle Networks**

Atsushi Kanno

( Nagoya Institute of Technology )

- 10:40 11 **[Invited] Demonstration of Throughput Improvement for 5G-NR mm-Wave Communication Inside Small Office by Analog Radio over Graded-Index Plastic Optical Fiber**  
Takamitsu Aiba<sup>1</sup>, Tomohiro Wakabayashi<sup>1</sup>  
( 1.YAZAKI Corporation )

**Coffee break (20 min.)**

**Session 4 Sensor**

- 11:20 12 **[Invited] Current Trends in POF-Based Distributed Brillouin Sensing**  
Yosuke Mizuno  
( Yokohama National University )
- 11:40 13 **[Invited] Field Test Results of a POF Sensor for Crack Detection in Blade Bearings of Wind Turbines**  
Rainer Engelbrecht<sup>1</sup>, Michael Luber<sup>1</sup>, Juri Vinogradov<sup>1</sup>, Moritz Hemmerlein<sup>2</sup>, Mathias Pick<sup>2</sup>, Olaf Ziemann<sup>1</sup>  
( 1.Technische Hochschule Nuernberg Georg Simon Ohm, 2.eolotec GmbH )
- 12:00 14 **Incoherent OFDR System for Distances up to 200 m SI-POF**  
Juri Vinogradov<sup>1</sup>, Roman Kruglov<sup>1</sup>, Olaf Ziemann<sup>1</sup>, Rainer Engelbrecht<sup>1</sup>  
( 1.Technische Hochschule Nuernberg Georg Simon Ohm )
- 12:15 15 **Brillouin Frequency Shift Dependences on Strain and Temperature in POFs with Small Diameters**  
Shimbu Shirai<sup>1</sup>, Seiga Ochi<sup>1</sup>, Yuji Wada<sup>2</sup>, Kentaro Nakamura<sup>2</sup>, Toru Moriya<sup>3</sup>, Yugo Kaseda<sup>3</sup>, Takashi Shimizu<sup>3</sup>, Yosuke Mizuno<sup>1</sup>  
( 1.Yokohama National University, 2.Tokyo Institute of Technology, 3.Nitto Denko Corporation )
- 12:30 16 **Sensing Capabilities of Bragg Reflectors Inscribed in Polypropylene No-Core Waveguides**  
Ivan Chapalo<sup>1</sup>, Vasilis Sarakatsianos<sup>1</sup>, Eleni Grantzioti<sup>1</sup>, Theodoros Manouras<sup>1,2</sup>, Maria Vamvakaki<sup>1,2</sup>, Maria Konstantaki<sup>1</sup>, Stavros Pissadakis<sup>1</sup>  
( 1.Foundation for Research and Technology - Hellas, 2.University of Crete )

**Lunch**

on your own

**Session 5 Datacom**

- 14:15 17 **[Invited] Small Core Gi-POF for Data Communications in OPTICALization**  
Dexi Weng<sup>1,2</sup>, Whitney White<sup>3</sup>, Qiurong Chen<sup>4</sup>, Mingqiang Wang<sup>6</sup>, Yoshiyuki Okamoto<sup>5</sup>  
( 1.Dexyan Poly Research Institute, 2.Comeall (Shanghai) Tech. Co., Ltd, 3.Chromis Technologies, 4.Applied Tech Institute, CAS, 5.New York University, 6.Zhejiang Megacore Chip Co., Ltd. )
- 14:35 18 **Recent Advances in WDM-POF Links with Extended Capabilities**  
David Sanchez Montero<sup>1</sup>, Diego López-Salinas<sup>1</sup>, Rubén Altuna<sup>1</sup>, Javier Barco<sup>1</sup>,

Pedro Luis Carro<sup>2</sup>, Carmen Vázquez García<sup>1</sup>  
( 1.Universidad Carlos III de Madrid, 2.University of Zaragoza )

- 14:50**    **19**    **Ultra-Low Bit Error Rate Plastic Optical Fiber for High-Performance Data Centers and Generative AI**  
Kenta Muramoto<sup>1</sup>, Yasuhiro Koike<sup>1</sup>  
( 1.Keio University )
- 15:05**    **20**    **Network-Transparent Decryption at the Edge and Management of Decryption Authority**  
Yuri Sato<sup>1</sup>, Takuma Fukui<sup>1</sup>, Hiroaki Nishi<sup>1</sup>  
( 1.Keio University )

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**Coffee break (15 min.)**

**Session 6 Transmission**

- 15:35**    **21**    **[Invited] High-Power Optical Fiber Transmission Using Hollow-Core Fibers**  
Motoharu Matsuura  
( The University of Electro-Communications )
- 15:55**    **22**    **[Invited] Near-Infrared Optical Self-Coupling: Recent Progress and Future Challenges**  
Okihiko Sugihara<sup>1</sup>, Hidetaka Terasawa<sup>1</sup>, Keisuke Kondo<sup>1</sup>, Tsuyoshi Namekawa<sup>2</sup>  
( 1.Utsunomiya University, 2.Orbray Co., Ltd. )
- 16:15**    **23**    **Subcarrier-Multiplexing (SCM) LoRa-like Waveform Intermodulation in Analog Radio over SI-POF for Internet of Things**  
Pedro Luis Carro<sup>1</sup>, Maria Ángeles Losada<sup>1</sup>, Paloma García-Dúcar<sup>1</sup>, Antonio Valdovinos<sup>1</sup>, Jesus de Mingo<sup>1</sup>, Alicia López<sup>1</sup>, Javier Mateo<sup>1</sup>, Juan Antonio Casao<sup>1</sup>, David Montero<sup>2</sup>  
( 1.University of Zaragoza, 2.Universidad Carlos III de Madrid )

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**16:30**            **Exhibition & Poster**  
at Keio Univ. North Bldg.

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**17:30**            **Move to “Kojunsha” by chartered bus**

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**18:30**            **Conference party**  
at "Kojunsha Club" in Ginza

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**November 13<sup>th</sup> (Wed.)**

**Venue: Keio University Mita Campus North Bldg. ground floor**

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**Session 7 Fiber**

- 9:30**    **24**    **[Invited] Introduction of Toray Plastic Optical Fiber**  
Masahiro Yoshioka  
( Toray Industries, Inc. )
- 9:50**    **25**    **[Invited]**  
Koshi Okita  
( Asahi Kasei Corp. )

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## Session 8 Application

- 10:10 26 POF Based Luminescent Solar Concentrators for Space Applications**  
Jon Grandes<sup>1</sup>, Eduardo Urrutia<sup>1</sup>, Eneko Arrospide<sup>1</sup>, María Asunción Illarramendi<sup>1</sup>, Joseba Zubia<sup>1</sup>  
( 1.University of the Basque Country (UPV/EHU) )
- 10:25 27 Online Transmission Response of Perfluorinated Polymer Fiber to Gamma Radiation: The Effects of Dose-Rate and Temperature**  
Ivan Chapalo<sup>1,2</sup>, Andrei Gusarov<sup>3</sup>, Karima Chah<sup>2</sup>, Patrice Megret<sup>2</sup>  
( 1.Foundation for Research and Technology - Hellas, 2.University of Mons, 3.SCK-CEN )
- 10:40 28 Comparative Study on Hydrogen Sulfide Sensor Using Plastic Optical Fiber Coated with Iron Oxide and Silver: Iron Oxide Nanoparticles**  
Juan David Lopez Vargas<sup>1,2</sup>, Regina Celia Allil<sup>2</sup>, Marcelo Martins Werneck<sup>1,2</sup>  
( 1.Nanotechnology Engineering Research Program, Federal University of Rio de Janeiro, 2.Electric Engineering Program – COPPE, Federal University of Rio de Janeiro )
- 10:55 29 Polymer Fibre FBG Sensor Array for Lumbar Puncture Sensing**  
Andreas Ioannou<sup>1</sup>, Kyriacos Kalli<sup>1</sup>  
( 1.Cyprus University of Technology )

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Coffee break (15 min.)

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## Session 9 Fiber & Material

- 11:25 30 [Invited] SI-POF Technology in Automotive Applications**  
Yoshihiro Tsukamoto  
( Mitsubishi Chemical Corporation )
- 11:45 31 Synthesis of Fluorine-Containing Materials for Gi-POF for OPTICALization: Starting from Fluorspar**  
Dexi Weng<sup>1,2,3</sup>, Frank (Minfeng) Fang<sup>1,2,3</sup>, Conroy (Chuanyou) Zhang<sup>2</sup>, Bruno Ameduri<sup>4</sup>, Howard Chiang<sup>5</sup>, Yoshiyuki Okamoto<sup>5</sup>  
( 1.Dexyan Poly Research Institute, 2.Change (Zhejiang) Polyation Tech. Co., Ltd, 3.Comeall (Shanghai) Tech. Co., Ltd, 4.Institut Charles Gerhardt, University Montpellier, CNRS, 5.New York University )
- 12:00 32 Production and Evaluation of Melt-Spun PFAS-Free POF with Poly(4-methyl-1-pentene) as the Cladding Material**  
Mark Pätzel<sup>1</sup>, Jan Kallweit<sup>1</sup>, Thomas Gries<sup>1</sup>  
( 1.Institut für Textiltechnik of RWTH Aachen University )
- 12:15 33 Higher Order Optical Flow Model of Step-Index Plastic Optical Fibers**  
Pedro Luis Carro<sup>1</sup>, Maria Angeles Losada<sup>1</sup>, Javier Mateo<sup>1</sup>, Alicia López<sup>1</sup>, Jesus de Mingo<sup>1</sup>, Paloma García-Dúcar<sup>1</sup>, Antonio Valdovinos<sup>1</sup>, Juan Antonio Casao<sup>1</sup>, Joseba Zubia<sup>2</sup>  
( 1.University of Zaragoza, 2.University of Basque Country )
- 12:30 34 Overcoming the Physical Constraints of Plastic Optical Fibers**
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## Through Neural Network Framework

Jorge Orlando Guerrero Aguilar<sup>1,2</sup>, Dwight Richards<sup>2</sup>, Maria Angeles Losada<sup>3</sup>, Alicia Lopez<sup>3</sup>, Javier Mateo<sup>3</sup>, Neo Antoniades<sup>2</sup>, Nicholas Madamopoulos<sup>1</sup>, Xin Jiang<sup>2</sup>

( 1.The City College of New York, CUNY, 2.The College of Staten Island, CUNY, 3.University of Zaragoza )

### Lunch

on your own

### Session 10 Datacom

- 14:15**     **35**     **[Invited] The Important Role of POF in the Future of Wireless Systems**  
Josef F. Faller<sup>1</sup>, Michael Faller<sup>1</sup>  
( 1.homefibre digital network gmbh )
- 14:35**     **36**     **[Invited] Development of Heat-Resistant GI Type Plastic Optical Fiber**  
Kazuyoshi Kurashima  
( AGC Inc. )
- 14:55**     **37**     **[Invited] Graded-Index Plastic Optical Fiber for High-Data Rate Transmission**  
Yuichi Tsujita<sup>1</sup>, Kazuya Takayama<sup>1</sup>, Takashi Shimizu<sup>1</sup>  
( 1.Nitto Denko Corporation )
- 15:15**     **Award Ceremony**  
**Closing**

## Poster Presentation

**Presentation Time: Nov. 11th, 16:30–18:00 (Venue: TOGO-KINENKAN, 3rd floor, “Juko”)**

**Exhibition and Poster Time: Nov. 12th, 16:30–17:30 (Venue: Keio University Mita Campus, North Bldg.)**

### **P-01 Evaluation of Scattering Suppression Effects in Double-Cladding Birefringence-Reduced Core Polymer Optical Fiber**

Yurika Kuga<sup>1</sup>, Kimiteru Yamauchi, Yuki Ino, Shingo Sode, Rei Furukawa<sup>1</sup>  
( 1.The University of Electro-Communications )

### **P-02 Performance of Commercially Available Fluorescent Plastic Optical Fibre Intended to be an “Optical Antenna”**

Bettina Fanzeres Cordoniz Buckingham Maia<sup>1</sup>, Ivan Landerson das Chagas Pinheiro<sup>1</sup>, Ricardo Marques Ribeiro<sup>1</sup>, Vinicius Nunes Henrique Silva<sup>1</sup>

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( 1.Universidade Federal Fluminense )

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**P-03 All Solid Flexible Light-Induced Self-Written Optical Soldering Using Photocurable Gel Material**

Hayato Kakurai<sup>1</sup>, Hidetaka Terasawa<sup>1</sup>, Keisuke Kondo<sup>1</sup>, Okihiko Sugihara<sup>1</sup>  
( 1.Utsunomiya University )

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**P-04 Fabrication of Light-Induced Self-Written Optical Waveguide Using 2 mm Laser Light**

Mizuki Shiba<sup>2</sup>, Yuta Sasaki<sup>2</sup>, Hidetaka Terasawa<sup>2</sup>, Keisuke Kondo<sup>2</sup>, Okihiko Sugihara<sup>2</sup>  
( 2.Utsunomiya University )

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**P-05 Helical Axis Orientation of Carbon Micro Coils Using Host Polymer Orientation**

Nao Mochizuki<sup>1</sup>, Yusuke Nakashima<sup>1</sup>, Rei Furukawa<sup>1</sup>  
( 1.The University of Electro-Communications )

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**P-06 In-Depth Analysis of POF-Based Twist Sensor Performanace via Core-Offset-Free Modal Interference**

Ryo Takano<sup>1</sup>, Hamza Javid<sup>1</sup>, Yosuke Mizuno<sup>1,2</sup>  
( 1.Faculty of Engineering, Yokohama National University, 2.Institute for Multidisciplinary Science, Yokohama National University )

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**P-07 Touch Sensing Using FBG Inscribed in POF: Effect of Grating Number**

Nonoka Kitamura<sup>1</sup>, Hamza Javid<sup>1</sup>, Shunsuke Watanabe<sup>2</sup>, Heeyoung Lee<sup>3</sup>, Yosuke Mizuno<sup>1,4</sup>  
( 1.Faculty of Engineering, Yokohama National University, 2.OXIDE Corporation, 3.Shibaura Institute of Technology, 4.Institute of Multidisciplinary Sciences, Yokohama National University )

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**P-08 Distributed Vibration Detection in POF Using High-Speed Brillouin Optical Correlation-Domain Reflectometry**

Shuto Tsurugai<sup>1</sup>, Seiga Ochi<sup>2</sup>, Kohei Noda<sup>3</sup>, Yosuke Mizuno<sup>2</sup>, Heeyoung Lee<sup>1</sup>  
( 1.Shibaura Institute of Technology, 2.Yokohama National University, 3.The University of Tokyo )

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**P-09 Excitation of Axially Asymmetrical Modes in Plasma-Etched POF for High-Sensitivity Modal-Interference-Based Strain Sensing**

Akihito Kato<sup>1</sup>, Ryo Nakashima<sup>2</sup>, Takuto Nakanishi<sup>2</sup>, Daisuke Yamane<sup>2</sup>, Yosuke Mizuno<sup>3</sup>, Heeyoung Lee<sup>1</sup>  
( 1.Shibaura Institute of Technology, 2.Ritsumeikan University, 3.Yokohama National University )

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**P-10 Strategies for Improving Spatial Resolution in POF-Based Brillouin Optical Correlation-Domain Reflectometry**

○Seiga Ochi<sup>1</sup>, Keita Kikuchi<sup>2</sup>, Shuto Tsurugai<sup>2</sup>, Heeyoung Lee<sup>2</sup>, Yosuke Mizuno<sup>1,3</sup>

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( 1.Faculty of Engineering, Yokohama National University, 2.Shibaura Institute of Technology, 3.Institute of Multidisciplinary Sciences, Yokohama National University )

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**P-11 Machine-Learning Assisted Speckle-Based POF Sensor for Detecting Microvibrati**

David Sanchez Montero<sup>1</sup>, Jesús Yaque<sup>1</sup>, Rubén Altuna<sup>1</sup>, Javier Barco<sup>1</sup>, Joseba Zubía Zaballa<sup>2</sup>, Carmen Vázquez<sup>1</sup>

( 1.Universidad Carlos III de Madrid, 2.University of the Basque Country )

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**P-12 Ribbon and Wide Fabric for Curing UV Adhesives Using Side-Emitting POF**

Mark Pätzel<sup>1</sup>, Jan Kallweit<sup>1</sup>, Robert Seewald<sup>2</sup>, Alexander Schiebahn<sup>2</sup>, Uwe Reisinger<sup>2</sup>, Friederike Brackmann<sup>3</sup>, Florian Rackerseder<sup>3</sup>, Sarah Klein<sup>3</sup>, Martin Traub<sup>3</sup>, Alexander Olowinsky<sup>3</sup>, Thomas Gries<sup>1</sup>

( 1.Institut für Textiltechnik of RWTH Aachen University, 2.Welding and Joining Institute, RWTH Aachen University, 3.Fraunhofer Institute for Laser Technology ILT )

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**P-13 Spatial Data and Feed Light Divider Using a Silicon PV Cell for Power-Over-Fiber Systems**

Yu Miyakawa<sup>1</sup>, Yuya Yaguchi<sup>1</sup>, Shih-Chun Lin<sup>2</sup>, Suresh Subramaniam<sup>3</sup>, Hiroshi Hasegawa<sup>4</sup>, Motoharu Matsuura<sup>1</sup>

( 1.The University of Electro-Communications, 2.North Carolina State University, 3.George Washington University, 4.Nagoya University )

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**P-14 Effects of the Dye Distribution on the Performance of Doped POFs as Solar Concentrators**

Jagoba Barata<sup>1</sup>, María Asunción Illarramendi<sup>1</sup>, Jon Arrue<sup>1</sup>, Joseba Zubia<sup>1</sup>

( 1.The University of the Basque Country )

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**P-15 Knot Tenacity of POF as a Proxy for Weavability**

Jan Kallweit<sup>1</sup>, Mark Pätzel<sup>1</sup>, Fabian Köntges<sup>1</sup>, Frederik Traue<sup>1</sup>, Thomas Gries<sup>1</sup>

( 1.Institut für Textiltechnik of RWTH Aachen University )

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**P-16 Mode Stabilization Analysis of Refractive Index Distribution-Controlled Terpolymer Optical Fibers**

Hikaru Sato<sup>1</sup>, Kimiteru Yamauchi, Rei Furukawa<sup>1</sup>,

( 1.The University of Electro-Communications )

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**P-17 Polarization Control of Graded-Index Plastic Optical Fiber Links for**

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**Improving Data Transmission Quality**

Shizuki Sasaki<sup>1</sup>, Kenta Muramoto<sup>1</sup>, Yasuhiro Koike<sup>1</sup>

( 1.Keio University )

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**P-18 Simulation for Multimode Fiber- Waveguide Coupling Based on Near Field and Far Field Pattern**

Ziqiao Ni<sup>1</sup>, Okihito Sugihara<sup>1</sup>

( 1.Utsunomiya University )

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**P-19 Communication Error Measurement System to Design High-Efficient Codec for Error-Free POF**

Kohei Wada<sup>1</sup>, Takero Magara<sup>2</sup>, Nobuyuki Yamasaki<sup>2</sup>, Kenta Muramoto<sup>3</sup>, Yasuhiro Koike<sup>3</sup>

( 1.Faculty of Science and Technology, Keio University, 2.Graduate School of Science and Technology, Keio University, 3.Keio Photonics Research Institute, Keio University )

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**P-20 200 m Gigabit POF Link Based on 520 nm Laser Diode and PAM Media Converter**

Juri Vinogradov<sup>1</sup>, Roman Kruglov<sup>1</sup>, Ulrich Wetzel<sup>2</sup>, Rainer Engelbrecht<sup>1</sup>, Olaf Ziemann<sup>1</sup>

( 1.Technische Hochschule Nuernberg Georg Simon Ohm, POF-AC, 2.Siemens AG, Digital Industries Motion Control Innovation Center for applied Power Electronics )

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**P-21 Plastic Optical Fiber-Based Wiring Solution for Automotive Power Electronics Systems**

Gaizka Durana<sup>1</sup>, Edorta Ibarra<sup>2</sup>, Iñigo Kortabarria<sup>2</sup>, Asier Matallana<sup>2</sup>, Gotzon

Aldabaldetrekua<sup>1</sup>

( 1.Department of Communications Engineering, Engineering School of Bilbao / University of the Basque Country, 2.Department of Electronics Technology, Engineering School of Bilbao / University of the Basque Country )

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**P-22 Performance Comparison of Simple Manual Facet Finishing Techniques for POFs**

Masashi Eguchi<sup>1</sup>, Akaru Okazaki<sup>1</sup>, Kotaro Takahashi<sup>1</sup>, Kimio Oguchi<sup>2</sup>

( 1.Chitose Institute of Science and Technology, 2.National Taiwan University of Science and Technology )

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**P-23 An Optoelectronic Oscillator Based on Plastic Optical Fibre for Didactic Purpose**

Vitor Tavares Ferreira<sup>1</sup>, José Roberto Moraes de Andrade<sup>1</sup>, Vanessa Przybylski Ribeiro

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Magri<sup>1</sup>, Alexandre Castro De Toledo Santos<sup>1</sup>, Vinicius Nunes Henrique Silva<sup>1</sup>, Ricardo Marques Ribeiro<sup>1</sup>  
( 1.Universidade Federal Fluminense )

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**P-24 Optically Powered Antenna Module Without Electrical Power Amplifiers**

Yuki Gomi<sup>1</sup>, Souya Sugiura<sup>1</sup>, Motoharu Matsuura<sup>1,2</sup>  
( 1.The University of Electro-Communications, 2.Keio University )

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