

OWPT2022 AGENDA At-A-Glance

Online/Venue hybrid conference hosted in Japan

Oral session venue: **Room 419, Pacifico Yokohama**

Poster session venue: **Pacifico Yokohama Exhibition Hall A**

PST	EST	UTC	JST	Apr. 18	Apr. 19	Apr. 20	Apr. 21	
16:00	19:00	0:00	9:00			OPIC Plenary Session	Tom Nugent	
			9:15					
			9:30		Hoa Dinh Nguyen		Hatem Zeine	
			9:45					
17:00	20:00	1:00	10:00		Yuha Tai		Masahiro Koga	
			10:15		Shunki Hayashi		Neda Nouri	
			10:30		Coffee Break		Coffee Break	
			10:45					
18:00	21:00	2:00	11:00		Satoshi Kamiyama		Joao Batista Rosolem	
			11:15				Joao Batista Rosolem	
			11:30		Jenna Campbell		Yuga Motomura	
			11:45		Akira Ishibashi		Closing Remarks	
19:00	22:00	3:00	12:00		Lunch Break		Break	
			12:15					
			12:30			Poster Session		
			12:45			• Natsuki Shindo		
20:00	23:00	4:00	13:00	Hiromichi Imai	• Kaoru Asaba			
			13:15			• Naoto Kato		
			13:30			• Yubo Wang		
			13:45	Opening Remarks		• Kai Murakami		
21:00	0:00	5:00	14:00	OWPT Plenary	Yuto Kikuchi	• Kimitaka Tsuruta		
			14:15	Simon Fafard	Alexey Rukosuev	• Konami Yada		
			14:30	Yasuhiko Takeda	Ilya Galaktionov	Break		
			14:45					
22:00	1:00	6:00	15:00	Coffee Break	Coffee Break	Coffee Break		
			15:15					
			15:30	Shunsuke Shibui	Carmen Vázquez	Ortal Alpert		
			15:45	Marina Delgado Romero				
23:00	2:00	7:00	16:00	Gregor Keller	XiaoJie Ma	Mingzhi Zhao		
			16:15	Meike Schauerte	Sicheng Lu	Keval Dattani		
			16:30	Henning Helmers	Mitchell Cox	Qingwen Liu		
			16:45					

Plenary	Invited	Regular	Poster
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Oral Session

OWPT <Room 419>

Monday, 18 April

[OWPT1] 13:45-15:00
OWPT Session 1

Chairs: Tomoyuki Miyamoto
Tokyo Tech
Takeo Maruyama
Kanazawa Univ.

OWPT-Opening 13:45
Opening Remarks

OWPT1-01 14:00 *Plenary*

High Performance Laser Power Converters and Applications

Simon Fafard
Broadcom

New OWPT applications are emerging from the availability of higher OPC output powers. Applications that were not possible in the past, due to the lower output power of OPC, are now becoming reality. The higher output powers are in practice only realized using vertical multijunction OPC devices. Our work focuses on providing a roadmap for devices achieving not only higher efficiencies, but also on the practical aspects necessary to push the devices to higher output powers

OWPT1-02 14:30 *Invited*

Light Trapping for Temperature-Insensitive High-Efficient Laser Power Converters

Yasuhiko Takeda
Toyota Central Research and Development Laboratories, Inc.

Light trapping using an angular-selective filter on the front face and a diffuse reflector on the rear face notably improves the performance of laser power converters, with no need of microfabrication processes.

----- Coffee Break 15:00-15:30 -----

[OWPT2] 15:30-17:00
OWPT Session 2

Chair: Yasuhiko Takeda
Toyota Central Research and Development Laboratories

OWPT2-01 15:30

Investigation of Optical Wireless Power Transmission Using CIGS Solar Cells

Shunsuke Shibui¹, Masahiro Koga¹, Kazuki Kurooka¹, Motoshi Nakamura², Hiroshi Tomita², Shiro Uchida¹

¹Chiba Institute of Technology, ²Idemitsu Kosan Co., Ltd.,

CIGS solar cells were irradiated with 980 nm and 1064 nm lasers to investigate the photoelectric conversion efficiency for optical wireless power transmission (OWPT). As a result, the maximum photoelectric conversion efficiency of 34.8% was obtained when irradiated with 1064nm laser light. This result indicates the potential of OWPT using CIGS solar cells.

OWPT2-02 15:45

Evaluation of Photovoltaic Laser Power Converters for Non-Uniform Laser Irradiance Profiles

Marina Delgado Romero, Iván García, Manuel Hinojosa, Carlos Algora
Instituto de Energía Solar / Universidad Politécnica de Madrid

The non-uniform irradiance of fiber lasers influences the performance of power-by-light systems. We analyze the non-uniformity in both single and triple junction power converters in addition to manufacturing tolerances and series resistance effect. We present an experimental efficiency of 67.0±0.9 % in triple junction power converters for an input power of 2.8 W using a laser wavelength of 857 nm.

OWPT2-03 16:00

Adaptation of Laser Power Converters to the Needs of Possible Aerospace and Space Applications

Gregor Keller, Thorsten Wierzkowski, Victor Khorenko
AZUR SPACE Solar Power GmbH

A wide number of applications, like remote powering of satellites, landing vehicles or charging drones during flight are limited by onboard power capacity. We discuss how III/V-semiconductors can provide the required performance. The influence of device dimensions, operation temperatures and radiation environment for vertical structures based on GaAs and metamorphic InGaAs material is investigated.

OWPT2-04 16:15

Subcell Spectral Response Determination for Multi-Junction Photonic Power Converters based on Negative Bias I-V Measurement

Meike Schauerer, Oliver Höhn, Henning Helmers
Fraunhofer Institute for Solar Energy Systems ISE

A method to obtain the spectral response of the individual subcells of multi-junction photonic power converters (PPC) based on I-V measurements up to high negative voltages is introduced. The subcell short circuit currents of a four-junction PPC were extracted from the I-V curve and the spectral response of all subcells was calculated. An increase with increasing irradiance due to luminescence coupling was found for the current limiting subcell.

OWPT2-05 16:30 *Invited*

Photonic Power Converters for Telecom Optical Wavelength Bands

Henning Helmers
Fraunhofer Institute for Solar Energy Systems ISE, Freiburg, Germany

This talk will give an introduction into the requirements and boundary conditions for photonic power converters (PPCs) for telecom optical wavelength bands. The existing literature will be reviewed. Examples of different technological realizations for telecom wavelengths PPCs will be discussed. Moreover, recent approaches and results of telecom wavelength PPCs under development at Fraunhofer ISE will be presented.

Tuesday, 19 April

[OWPT3] 9:30-10:30
OWPT Session 3

Chair: Genichi Hatakoshi
Waseda Univ.

OWPT3-01 9:30 *Invited*

Bidirectional Optical Wireless Power Transfer via Optical Transceivers

Hoa Dinh Nguyen
Kyushu University

This article aims at introducing a brief overview on the recently proposed concept of bidirectional optical wireless power transfer. Potential advantages of this concept are highlighted, while its challenges are also described. To cope with such challenges, outlooks on future research directions are provided.

OWPT3-02 10:00

Experimental Configuration and Characterization of Fly-eye Lens Based Underwater Optical Wireless Power Transmission

Yuha Tai, Tomoyuki Miyamoto
Tokyo Institute of Technology

A uniform irradiation configuration using a fly-eye lens system that is effective for efficiency and heat dissipation, was constructed and evaluated for use in underwater optical wireless power transmission. The maximum output of the GaAs solar cell was 0.755 W under 450 nm-6 W laser beam through a 90-cm long water tank. The characteristics of the fly-eye lens system were evaluated for irradiation beam size and incident angle dependence.

OWPT3-03 10:15

Effect of the Irradiation Laser Wavelength and the Sampling Season of Seawater on Optical Wireless Power Transmission Under Seawater

Shunki Hayashi, Tessei Kikuchi, Yuma Aoki, WONG Yiu Leung, Shiro Uchida
Chiba Institute of Technology

The effect of the irradiation laser wavelength and the sampling season of seawater on optical wireless transmission under seawater was investigated. The light reaching rates were measured using 450 nm, 532 nm, and 635 nm lasers with low attenuation in seawater. The 532 nm laser had the highest light reaching rate of 50.1% at a distance of 60 cm in winter seawater. The 635 nm laser had a higher reaching rate in turbid summer seawater than the other lasers.

----- Coffee Break 10:30-11:00 -----

[OWPT4] 11:00-12:00
OWPT Session 4

Chair: Shiro Uchida
Chiba Institute of Technology

OWPT4-01 11:00 *Invited*

Crystal Growth and Characterization of Nitride-Based Multi-Quantum Shell/Nanowire Lasers

Satoshi Kamiyama, Tetsuya Takeuchi, Motoaki Iwaya
Meijo University

Crystal growth, fabrication and characterization of nitride-based multi-quantum shell/nanowire lasers were demonstrated. Very precisely controlled MOVPE growth made it possible to obtain the uniform arrangement of nanowire/multi-quantum shells. Although the high resistive current flow is a serious problem, the first room-temperature pulsed lasing was achieved with the planar structure with the n-GaN cap layer

OWPT4-02 11:30

4 W Continuous Wave, 7 W Pulsed Diffraction-Limited 1550 nm Laser Diodes and Amplifiers

Jenna Campbell, Michelle Labrecque, Kevin McClune, Fedor Talantov, Leticia Krambeck, Trevor Cooper, Elliot Burke, Daniel Renner, Leif Johansson, Milan Mashanovich, Paul Leisher
Freedom Photonics LLC

We have demonstrated world-record power from nearly diffraction-limited diode lasers at 1550 nm, with 4 W continuous wave operation and slow axis beam propagation factor M^2 of 1.6, at room temperature.

OWPT4-03 11:45

Lifting off Spatial Functional Degeneracies in Solar Cells and Clean Rooms, Where Does it Lead Us for mitigating Climate Change in Cities?

Akira Ishibashi, Nobuo Sawamura, Ziling Zhou, Xingbai Hong, Xiaohan Wang, Yubo Wang, Naoto Kato
Hokkaido University

Two-dimensional photorecepto-conversion scheme (2DPRCS) enables sparing use of semiconductors and the clean unit system platform (CUSP) plus gas-exchange unit (GEU) system is applicable to any closed space. When degeneracy off-lifting 2DPRCS and CUSP/GEU are combined we would be able to build a new ergo-environmental system for mitigating climate change in cities.

----- Lunch 12:00-13:30 -----

Oral Session

OWPT <Room 419>

Tuesday, 19 April

[OWPT5] 13:30-15:00

OWPT Session 5

Chairs: Kayo Ogawa
Japan Women's Univ.
Wakana Kubo
TUAT

[OWPT6] 15:30-17:00

OWPT Session 6

Chairs: Nobuyoshi Mori
Yamashita Denso. Corp.
Noriyuki Yokouchi
Furukawa Electric

OWPT5-01 13:30 *Invited*

Beam-Tracking Technology Developed for Free-Space Optical Communication and Its Application to Optical Wireless Power Transfer

Hirofumi Imai, Noriaki Watanabe, Keisuke Chujo, Hidetaka Hayashi, Akira Yamauchi
SoftBank Corp.

Authors have developed a novel beam direction control technique utilizing visual recognition technology. This paper presents the characteristics of this technique and experimental results when applied to FSOC (free space optical communication), and then discusses its application to OWPT (optical wireless power transfer).

OWPT5-02 14:00

Design and Characterization of Dynamic OWPT Charging to Micro-drones

Yuto Kikuchi, Tomoyuki Miyamoto
Tokyo Institute of Technology

The continuous flight conditions of the micro-drone were investigated using dynamic charging based on OWPT. The efficient flight conditions of the micro-drone, whose additional functions were limited by the micro-size, were evaluated to achieve efficient flight operations. It was confirmed that the micro-drone could rise up to 64 cm when the GaAs solar cell was irradiated with a 24.4 W infrared laser beam.

OWPT5-03 14:15

Performing Trial Measurements of the Structural Constant of the Refractive Index on an Atmospheric Path Using a Shack-Hartmann Wavefront Sensor

Alexey Rukosuev, Ilya Galaktionov, Alexander Nikitin, Vladimir Toporovsky, Julia Sheldakova, Alexis Kudryashov
Institute of geosphere dynamics RAS

The results of measurements of the refractive-index structure constant using a Shack-Hartmann wavefront sensor are presented and compared with the values obtained using a standard weather station

OWPT5-04 14:30 *Invited*

Adaptive Optical System with Bimorph Mirror for Wireless Energy Transfer Through a Moderately Scattering Aerosol

Ilya Galaktionov, Julia Sheldakova, Alexis Kudryashov
Institute of geosphere dynamics RAS

We performed numerical simulations and experimental research of visible laser beam propagation through the scattering suspension imitated an atmospheric aerosol. The parameters of scattered laser beam were analyzed both in numerical simulation and in the laboratory experiment using Shack-Hartmann technique. Experimental setup with the bimorph deformable mirror, Shack-Hartmann sensor and far-field focal spot intensity analyzer was assembled and tested.

----- Coffee Break 15:00-15:30 -----

OWPT6-01 15:30 *Invited*

Power over Fiber in Support of C-RAN 5G Cellular Networks

Carmen Vazquez
Universidad Carlos III de Madrid

Power by light can enhance high-bandwidth centralized mobile access networks. Tests with 5G-NR signals with throughputs of up to 1.4 Gbs with hardware to implement sleep modes that can improve power efficiency are shown. Optical feeding and data transfer from hundreds of meters to tens of kilometers and with different types of optical fibers, including multicore fibers, are presented.

OWPT6-02 16:00

Investigation of Response Time and Optimization of Safety System for Optical Wireless Power Transmission based on Depth Camera

XiaoJie Ma, Tomoyuki Miyamoto
Tokyo Institute of Technology

OWPT has some safety problems, such as unexpected, unnecessary, light irradiation to human and other objects. The safety system of the OWPT system has been constructed based on an unnecessary approaching object detection scheme using a depth camera and the light source can be turned off after detecting the approaching objects. In this report, the investigation of shutdown time of safety system for OWPT based on depth camera are reported.

OWPT6-03 16:15

Hybrid Optical Wireless Power (~1W) and Data (~1GHz) Transmission System for Meter-range Distance

Sicheng Lu, Yoshiki Iwabuchi, Yoshikazu Shimeno, Takeo Maruyama
Kanazawa University

Hybrid optical wireless power and data transmission system which can be used to transmit power and real-time data simultaneously for meter-range distance have been designed. Two wavelength lasers are used as the transmitter for power and data transmission. We successfully demonstrated 1 W power and 1 GHz 3-dB bandwidth.

OWPT6-04 16:30 *Invited*

Wireless Optical Communication with Structured Light

Mitchell Cox
University of the Witwatersrand, Johannesburg

Wireless optical communications can be used for high-speed, license-free systems. Higher order modes have unlocked the capability for petabit wireless optical communications, however, recently these modes have also been investigated to improve the range of these systems. This paper provides a brief summary on these fields, as well as some possible uses of structured light in optical wireless power transfer.

Wednesday, 20 April

[OWPTp] 12:30-14:00

OWPT Poster Session

<Exhibition Hall A>
Poster session program is next page

----- Lunch 14:00-15:30 -----

[OWPT7] 15:30-17:00

OWPT Session 7

Chair: Akira Ishibashi
Hokkaido Univ.

OWPT7-01 15:30 *Invited*

Lessons and Feedback from 2.5 Years of Continuous Operation of an Optical Wireless Power System in Hotel's Public Area

Ortal Alpert, Ori Mor, Eli Zlatkin
Wi-Charge Ltd.

During October 2019, two optical wireless power systems were installed in the public area of a hotel in Tel Aviv after receiving full safety certifications as a class 1 laser. The systems operated continuously since, this paper presents statistics, lessons, feedback, and other relevant data about this installation.

OWPT7-02 16:00

1 W High Electricity Output from LED-Array OWPT System for Small Terminals

Mingzhi Zhao, Tomoyuki Miyamoto
Tokyo Institute of Technology

LED-based optical wireless power transmission systems are more appropriate for household applications due to the loose regulation and other merits. In this research, the maximum output of a handy size LED-OWPT system was analyzed under the conditions of fixed lens and receiver areas. In the experiment, 1 W class electricity output was achieved at 1 m by 3x3 LEDs array.

OWPT7-03 16:15

Laser Power in Space: Meeting Power Demands for Small Satellites in Low Earth Orbit

Keval Dattani¹, Stephen J Sweeney², Ravi K Misra², Igor P Marko²
¹Space Power Ltd, ²Advanced Technology Institute and Department of Physics, University of Surrey,

The uses for SmallSats are continually increasing since the CubeSat boom of 2014, demanding more powerful and varied sensors to present a more comprehensive view of the world. The limited access to sunlight and restricted size of SmallSats limit the amount of power that can be generated. In this paper we discuss some of the technical considerations for developing access to auxiliary power to bring up the efficiency of satellites in LEO using laser beaming approaches.

OWPT7-04 16:30 *Invited*

Optical Power Transfer Channel Analysis of Resonant Beam System

Qingwen Liu, Mingqing Liu, Shuaifan Xia, Minglan Xiong, Mengyuan Xu, Qingwei Jiang
Tongji University

Resonant beam system (RBS) is capable of realizing simultaneously high-power energy transfer, high-rate data transfer, human safety, and self-alignment. As mobility is one of the most important features of RBS, the establishment of theoretical models and simulation tools for analyzing the system performance with an off-axis or tilted RBS receiver is of great necessity.

Thursday, 21 April

[OWPT8] 9:00-10:30

OWPT Session 8

Chair: Makoto Miyoshi
Nagoya Institute of Technology

OWPT8-01 9:00 *Invited*

Commercialization of Long Range, High Power Laser Power Beaming

Tom Nugent, Mike Hartnett
PowerLight Technologies

As long range, high power laser power beaming matures from laboratory demonstrations to commercial products, developers will need to expand traditional focus on power and distance to now include cost and operational efficiency. We show some recent advancements in power beaming systems that align with commercial requirements for telecommunications companies, and identify near-term, achievable component improvements expected to improve these metrics.

OWPT8-02 9:30 *Special*

Wireless Power Transfer and Maximum Power Theorem

Hatem Zeine
Ossia Inc.

This paper explains how Cota, a radio-frequency-based retrodirective wireless power, safely delivers maximum wireless power transfer over air, at a distance, and while the receiver is in motion, without the need for line of sight. It also explains how retrodirectivity is superior to beam-forming in RF-based wireless power technology.

OWPT8-03 10:00

Investigation of High Efficiency Laser Wireless Power Transmission Using InGaP / InGaAs / Ge 3-Junction Solar Cells

Masahiro Koga, Nozomi Matsuoka, Shunsuke Shibui, Shiro Uchida
Chiba Institute of Technology

We have tested optical wireless power transmission (OWPT) experiments using InGaP / InGaAs / Ge 3-junction solar cells irradiated with three lasers at 635 nm, 890 nm, and 1550 nm simultaneously. As a result, the photoelectric conversion efficiency of 43.7 % was obtained, higher than the 33.1 % obtained with 1-sun irradiation of simulated sunlight. This result is expected to realize an auxiliary OWPT system for vehicles equipped with 3-junction solar cells.

OWPT8-04 10:15

Tolerance Study of Thin Photonic Power Converters with Planar Back Reflectors

Neda Nouri¹, Christopher E. Valdivia¹, Meghan N. Beattie¹, Nicholas P. Irvin², Chaomin Zhang², Richard R. King², Christiana B. Honsberg², Jacob J. Krich¹, Karin Hinzer¹

¹University of Ottawa, ²Arizona state university

The sensitivity of absorption to variations in device thickness and incident light wavelength is investigated in thin photonic power converters with flat back reflectors. Simulations revealed that back-reflector-induced resonances shift from constructive to destructive with thickness variations of ~100 nm. Absorption is reduced by 1.5-3.7% and 7.1-13.5%, respectively, for deviations of 10 and 20 nm from the design wavelength, depending on the resonance width.

----- Coffee Break 10:30-11:00 -----

Oral Session	Poster Session	
OWPT <Room 419>	OWPTp <Exhibition Hall A>	
Thursday, 21 April	Wednesday, 20 April 12:30-14:00	
<p>[OWPT9] 11:00-12:00 OWPT Session 9 Chairs: Motoharu Matsuura <i>Univ. Electro-Communications</i> Kensuke Ikeda <i>CRIEPI</i></p>	<p>OWPTp-01 Flight Demonstration of Power-over-Fiber Drone for Aerial Base Stations Natsuki Shindo¹, Taiki Kobatake¹, Motoharu Matsuura¹, Demis Masson², Simon Fafard² ¹<i>University of Electro-Communications,</i> ²<i>Broadcom</i></p> <p>In this study, we investigate the current and voltage characteristics required for a power-over-fiber drone, which enables to provide unlimited flight time, using a specially customized photovoltaic power converter, and show a flight demonstration of a drone that is over 36 times larger than our previous work.</p>	<p>OWPTp-06 Investigation of Increasing of Driving Distance by Dynamic Charging using OWPT to Small Ground-based Mobilities Kimitaka Tsuruta, Tomoyuki Miyamoto <i>Tokyo Institute of Technology</i></p> <p>Ground-based electric mobilities require continuous operation and long distance moving, and OWPT is an attractive method for power transmission during moving. Using a small toy car, detailed design of a system configuration for dynamic charging, elucidation of the effect of light irradiation on thermal characteristics, and demonstration of operation with light beam irradiation from multiple light sources were investigated.</p>
<p>OWPT9-01 11:00 Hollow-Core Photonic Crystal Fibers as Platforms for Power-over-Fiber Applications Joao Batista Rosolem¹, Jonas Henrique Osório², Fábio Renato Bassan³, Foued Amrani³, Frédéric Gérôme³, Fetah Benabid³, Cristiano Monteiro de Barros Cordeiro² ¹<i>CPQD - Research and Development Center in Telecommunications,</i> ²<i>Institute of Physics "Gleb Wataghin" - University of Campinas,</i> ³<i>GPPMM Group - XLIM Institute - University of Limoges</i></p> <p>We report a power-over-fiber experiment using an inhibited-coupling hollow-core photonic crystal fiber. A tubular-lattice hollow-core fiber was used to deliver a 976nm power onto a photovoltaic converter and power up an electric circuit. We understand that this demonstration is the first step towards the utilization of hollow-core fiber as promising platforms for new power-over-fiber systems</p>	<p>OWPTp-02 Beam Deformation Correction using Orthogonal Cylindrical Beam Expander Kaoru Asaba, Tomoyuki Miyamoto <i>Tokyo Institute of Technology</i></p> <p>Efficiencies of OWPT system is affected by shape matching between projected light and solar cell. This report investigates beam deformation correction by independent adjustment of optical system utilizing two orthogonally arranged cylindrical lens beam expanders.</p>	<p>OWPTp-07 Investigation of Optical Wireless Communication and Power Transmission in Laguerre-Gaussian Mode Multiplexing Through Atmospheric Turbulence Konami Yada, Kayo Ogawa <i>Japan Women's University</i></p> <p>We have proposed a system that can realize large-capacity communication and power transmission using Laguerre-Gaussian (LG) beams under atmospheric turbulence. We found that power loss and communication quality by considering the combination of LG modes were improved.</p>
<p>OWPT9-02 11:15 Demonstration of a Graded Index Optical Fiber Cable for Kilometer-Scale PoF Applications Joao Batista Rosolem¹, Claudio Florida¹, João Carlos Vieira da Silva² ¹<i>CPQD - Research and Development Center in Telecommunications,</i> ²<i>Prismian Group</i></p> <p>We present a demonstration of a graded index optical fiber cable in a kilometer-scale PoF application. We perform experimental tests to demonstrate the feasibility to transmit high power at 808 nm in 1.6 km link using a graded index multimode fiber with 100/140 μm core. An optical cable was constructed using this fiber and it was tested with high optical power in outdoor environment.</p>	<p>OWPTp-03 Discrete Translational Symmetry Waveguide (DTSWG) for a New Photovoltaic System Naoto Kato, Nobuo Sawamura, Akira Ishibashi <i>Hokkaido University</i></p> <p>We have simulated Discrete Translational Symmetry Waveguide (DTSWG), for a new photovoltaic system. DTSWG shows strong wavelength dependence for coherent light, but for incoherent light, the wavelength dependence is weakened. The efficiency is not necessarily high enough. The cause of low efficiency and wavelength dependence is thought to be the junction of the two ellipses that make up the DTSWG.</p>	
<p>OWPT9-03 11:30 Effects of Window Layer on InGaAsP Photovoltaic Device for 1.06-μm-range Laser Power Transmission Yuga Motomura, Akira Kushiya, Kensuke Nishioka, Masakazu Arai <i>University of Miyazaki</i></p> <p>We report the effects of InP window layer insertion on InGaAsP photovoltaic device. Under 1064 nm laser irradiation, the short circuit current of the device with window layer was improved by 27% .</p>	<p>OWPTp-04 Cylinder Waveguide Based on Polydimethylsiloxane(PDMS) for Solar Cells Yubo Wang, Xingbai Hong, Akira Ishibashi <i>Hokkaido University</i></p> <p>A cylindrical waveguide based on polydimethylsiloxane (PDMS) for solar cells is proposed, by which we can greatly increase the amount of light absorbed while controlling the size of the solar cell. So far, we have done simulations of light propagation and measured the performance of light transmission within the waveguide, among other things.</p>	
<p>OWPT-Closing 11:45 Closing Remarks</p>	<p>OWPTp-05 Simultaneous Data and Power Transmission Using a Double-Clad Fiber with Low-Loss Transmission Band at 1550 nm Kai Murakami, Hikaru Mamiya, Motoharu Matsuura <i>The University of Electro-Communications</i></p> <p>We experimentally demonstrate a simultaneous data and power transmission using a double-clad fiber (DCF) with low-loss transmission band at 1550 nm. In this paper, by using a DCF with pure silica inner cladding, we successfully achieve higher power transmission efficiency than conventional power-over-fiber using DCFs in the 1550-nm feed light wavelength band.</p>	