第5回レーザ精密微細加工国際シンポジウム

— 基礎と産業応用 —

The 5th International Symposium on Laser Precision Microfabrication

LPM2004

http://www.jlps.gr.jp/lpm/lpm2004/

2004 年 5 月 11 日（火）～14 日（金）

奈良県新公会堂 (奈良市春日野町 101)

http://www.shinkokaido.jp/

共　催

レーザ加工学会　（JLPS）
理化学研究所　（RIKEN）
産業技術総合研究所（AIST）
SPIE- The International Society for Optical Engineering

Symposium Chair

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杉岡　幸次　（理化学研究所）

目　次

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LPM2004 の趣旨

LPM は基礎科学と産業応用の2つのピークを持つユニークな国際会議として知られています。当会議は日本と海外で交互に毎年開催(大宮、シンガポール、大阪、ミュンヘン)してまいりました。今年は古都奈良にて開催いたします。国内外からの論文投稿数 180 件を数えております。基礎研究者、エンドユーザー、レーザマニュファクチャラー等が一堂に会し、レーザ・材料相互作用の基礎科学からレーザ加工の最新トピックス、次世代技術などが幅広く議論されます。皆様の御参加を心よりお待ち申し上げております。

奈良・会場へのアクセス

関西空港や伊丹空港からは空港リムジンバスが便利です。関西空港からは一人片道 1800 円の料金で奈良ホテルと奈良駅(近鉄、JR線)まで約 85 分で到着します。バスは 9 番乗り場より 60 分／便の間隔で運行しています。

[リムジンバス時刻表] 関西空港、大阪(伊丹)空港: http://www.kate.co.jp/pc/time_table/nara_tt.html

JR、近鉄の奈良駅からは、2 番、又は、6 番、又は高畑町行きの市バスに乗車し、「大仏殿春日大社前」で下車(乗車時間約 5 分)します。そこから、奈良県新公会堂まで徒歩約 3 分です。バスは 5 分間隔で運行されています。タクシーの場合、奈良駅より新公会堂までは 680～800 円程度です。詳しくは、新公会堂のホームページ(http://www.shinkokaido.jp/)または LPM2004 ホームページをご参照下さい。

参加登録料

(Full Registration 参加費には technical digest, proceedings book 及び banquet の費用が含まれています)

Full Registration Payment Received by 30 April 2004, or On-site:

Member of JLPS/SPIE:	¥58,000
Non-Member:	¥63,000
One day Ticket:	¥30,000
Student:	¥10,000

Banquet Fee:

One-day-participant and Accompanied person:	¥10,000
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ご注意: 一日参加および学生参加登録には Banquet と Proceedings book の費用は含まれていません。
学生参加登録の際は学生証のコピーを Registration form に添付してください。

参加登録受付、宿泊予約のホームページ: http://www.jlps.gr.jp/lpm/lpm2004/

お問合せ先

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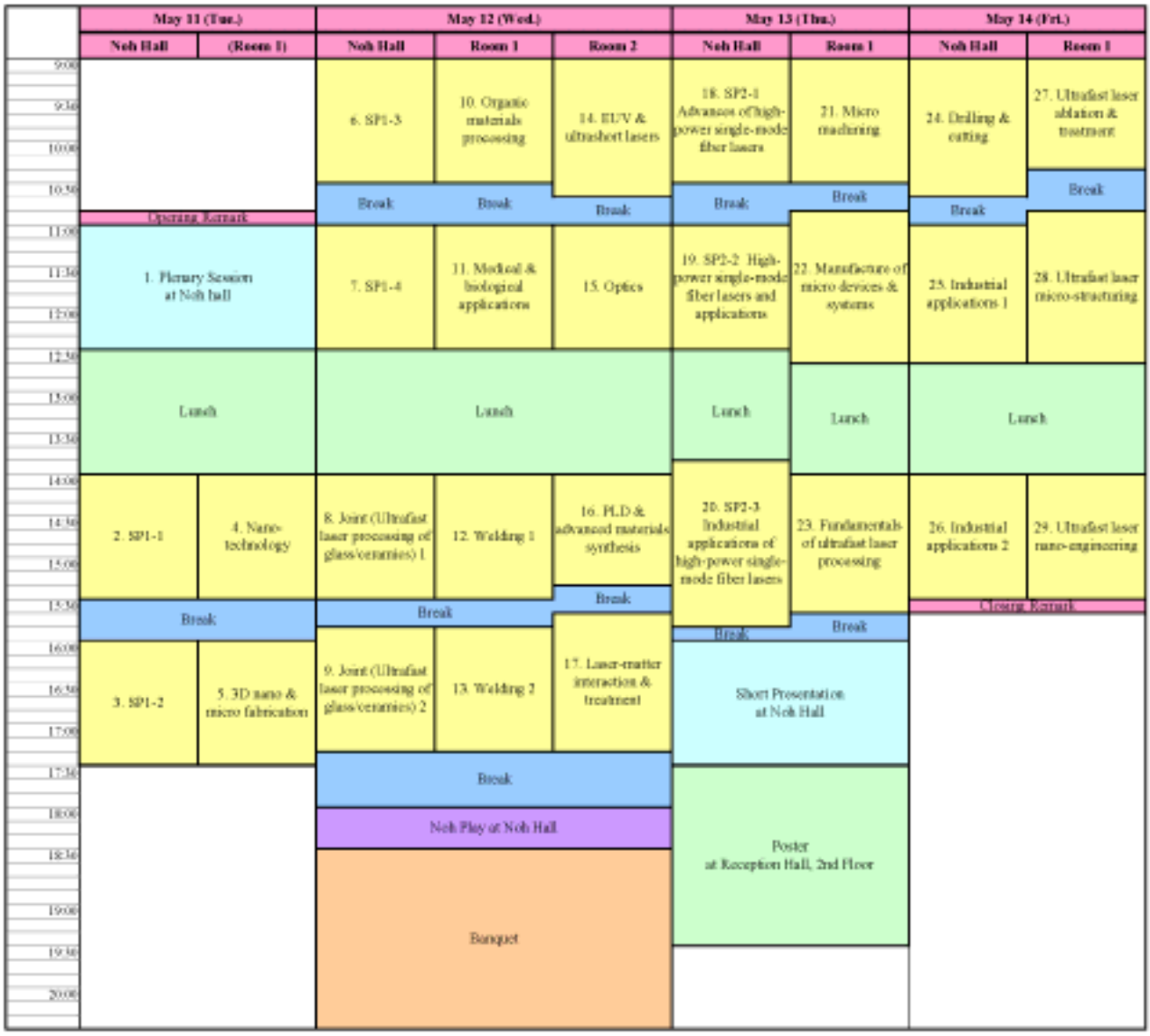
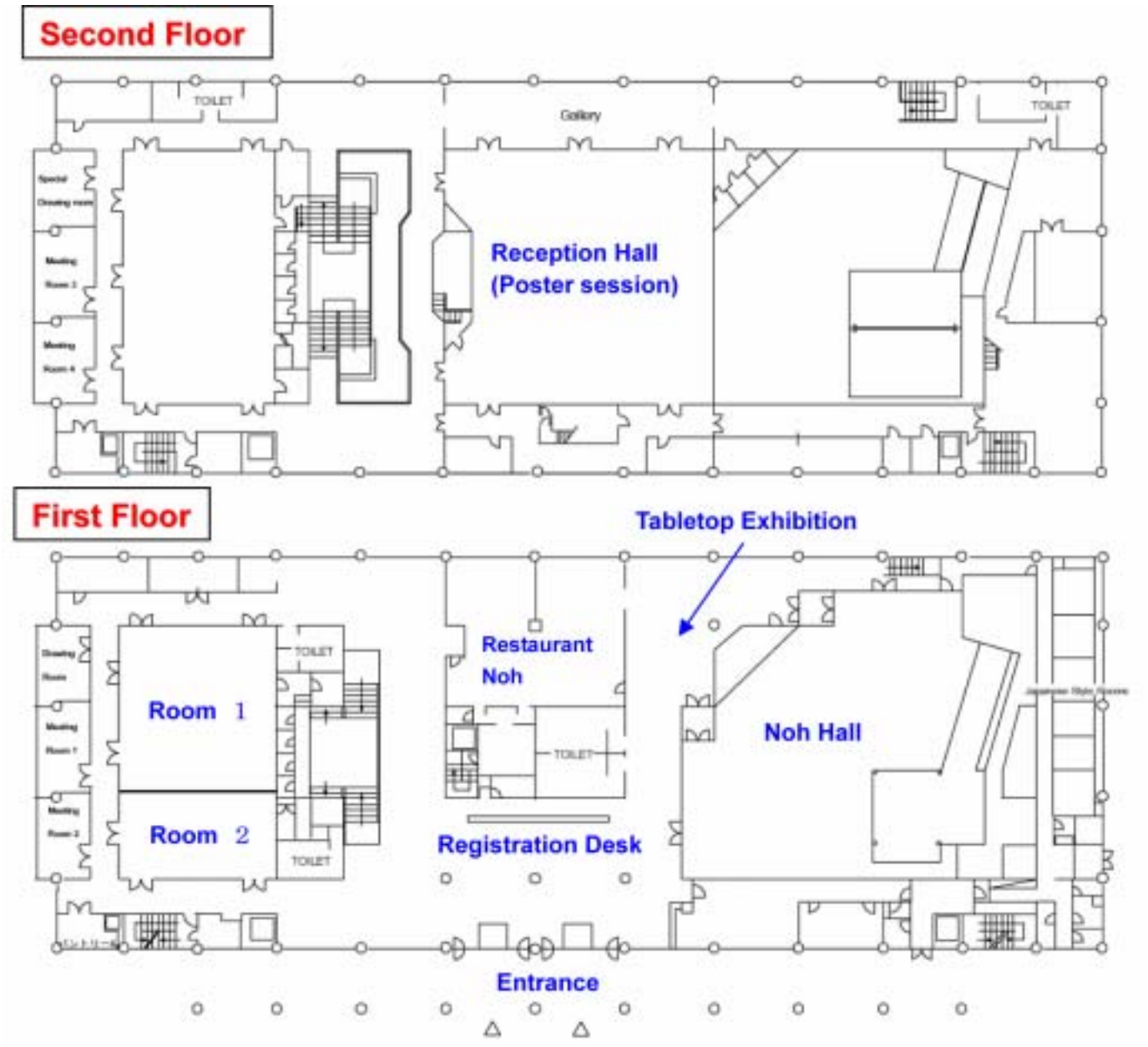
協 賛 (社)応用物理学会, (社)高温学会, (社)精密工学会, (社) 溶接学会, (社)レーザー学会
LIA-Laser Institute of America

LPM2004 Sessions



Floor Map


Second Floor
TOILET
Gallery
TOILET
Reception Hall
(Poster session)
First Floor
Tabletop Exhibition
Restaurant
Noh
Room 1
Room 2
TOILET
TOILET
TOILET
Noh Hall
Registration Desk
Entrance

招待講演者一覧

Invited Speakers

Plenary Talks:
K. Sugioka (RIKEN, Japan) “Three-dimensional laser microfabrication”.
F. Dausinger (Univ. of Stuttgart, Germany) “Micro machining with micro-,nano-, pico- or femtosecond pulses: European research results and applications”.
C. Paul Christensen (Potomac Photonics, USA) "Laser Microfabrication from a Commercial Perspective".

Special Session-1 :
“Laser Microfabrication of Glass Ceramic Materials and Novel Applications”

Tutorials/Overview: K. Richardson(Univ. of Central Florida, USA), H. Helvajian (The Aerospace Corp., USA), “Laser processing of glassy materials: how to marry material properties and laser parameters to achieve desired results”.

Invited Talks:
D. Krol (UC Davis/LLNL, USA), “Fs-laser fabrication of photonic structures in glass: the role of glass composition”.
A. Kolobov (AIST, Japan), “Nanometer-scale mechanisms of laser-induced structural changes in chalcogenide glasses”.
S. Nolte (Friedrich-Schiller-University Jena, Germany) "Ultrafast laser processing ― new possibilities for photonic device production".
V. Veyko (Saint Petersburg State Institute of Fine Mechanics and Optics, Russia) "Laser modification of glass－ceramics structure and properties: the new view on to the old materials".

Special Session-2:
“High-power single-mode fiber lasers and their novel applications”

Invited Talks:
A. Tuennermann (Fraunhofer IOF, Jena, Germany), “Fiber lasers and amplifiers – novel avenues to real world applications of ultrashort lasers”.
V. Gapontsev (IPG Laser GmbH, Germany),“Fiber lasers – New opportunities in precision microfabrication-”.
S. Woods (Southampton Photonics, UK), “Tailoring fiber laser specifications for applications from micro-machining (100W) to cutting (1kW)”.
I. Miyamoto (Osaka Univ., Japan), “Applications of high-power single-mode fiber lasers to novel microwelding and microcutting”.

Invited Talks in Regular Sessions:

< Fundamentals >
S. V. Garnov (A.M. Prokhorov General Physics Institute, Russia) “Ultrafast optical and electrical diagnostics of laser-induced modification of transparent materials”.

< Nanotechnology >
J. H. Klein-Wiele (Laser Laboratorium Gottingen e.V., Germany) "Nano-fabrication of solid materials with UV femtosecond pulses”.

< Femtosecond laser processing >
R. Stoian (Max Born Institute, MBI, Germany) "Temporal pulse manipulation and adaptive optimization in ultrafast laser processing of materials”.
J. Solis (CSIC, Spain) “Waveguide structures in heavy-metal oxide glasses written with fs laser pulses”.

< 3-D microfabrication >
J. W. Perry (The Univ. of Arizona, USA) Two-photon 3D lithography: materials and applications".

< Surface microstructuring >
M. Kuwahara (AIST, Japan) “Volume change thermal lithography technique for ultra-high density optical ROM mastering process”.

< Laser micromachining and microdevice fabrication >
T. Lippert (Paul Scherrer Institut, Switzerland) “Laser micromachining of optical devices”.
C. Arnold (Princeton Univ., USA) “Manufacture of mesoscale energy storage systems by laser-direct write”.

< Drilling >
S. Lazare (Univ. of Bordeaux, France) “Recent experimental and theoretical advances in microdrilling of polymers with ultraviolet laser beams”.

< Biological applications >
K. Koenig (IBMT Fraunhofer Institut, Germany) “Femtoseocnd laser application in biotechnology and medicine”.

< Industrial Applications >
T. Hagiwara (CMET Inc., Japan) “Current status and future prospects of laser stereolithography”.

< Micro Welding >
A. Olowinsky (Fraunhofer-Institut für Lasertechnik, Germany) “SHADOW- A new laser beam welding technology, Basics and applications”.
R. Holtz (LASAG AG, Switzerland), “Advanced laser micro welding by pulse control - New welding strategies with pulsed Nd:YAG lasers”.

S: Student

Oral Program

Tuesday 11 May, Noh Hall

10:50	**1. Plenary Session at Noh Hall (10:50 - 12:30) Chair: K. Itoh**
	● **Opening Remarks,** Isamu Miyamoto, Osaka University (Japan) [1-1] ● **Three-dimensional laser microfabrication,** Koji Sugioka, RIKEN (Japan) [1-2]#026 ● **Micro machining with micro-, nano-, pico- or femtosecond pulses:European research results and applications,** Friedrich Dausinger, Universitat Stuttgart IFSW (Germany) [1-3]#157 ● **Laser microfabrication from a commercial perspective,** C. Paul Christensen, Potomac Photonics (USA) [1-4]#024
12:30	**Lunch (12:30 - 14:00)**
14:00	**2. Special Session 1-1: Laser microfabrication of glass ceramic materials and novel applications (14:00 - 15:30) Chairs: K. Richardson / H. Helvajian**
	● **(Tutorial) Laser processing of glassy materials: how to marry material properties and laser parameters to achieve desired results,** Kathleen Richardson, University of Central Florida, Henry Helvajian, The Aerospace Corporation (USA) [2-1]#174 ● **Surface micro-structuring of silica glass by laser-induced backside wet etching: application into micropatterning of functional molecules on self-assembled monolayers,** Hiroyuki Niino, Ximing Ding, Yoshizo Kawaguchi, Tadatake Sato, Aiko Narazaki, Ryozo Kurosaki, National Institute of Advanced Industrial Science and Technology (Japan) [2-2]#140 ● **Laser induced structure ordering in glass from nano-particles to single-crystal patterning,** Takumi Fujiwara, Shintaro Mizuno, Tsuyoshi Honma, Yasuhiko Benino, Takayuki Komatsu, Nagaoka University of Technology; Ryujil Sato, Tsuruoka National College of Technology (Japan) [2-3]#055 ● **Formation process of micro-dots on densified silica glass produced by infrared laser irradiation,** Naoyuki Kitamura, Kohei Fukumi, Junji Nishii, AIST; Shouhei Yasuda, Hiromitsu Kozuka, Kansai University (Japan) [2-4]#069
15:30	**Coffee Break (15:30 - 16:00)**
16:00	**3. Special Session 1-2: Laser microfabrication of glass ceramic materials and novel applications (16:00 - 17:30) Chair: A. V. Kolobov**
	● **(Invited) Fs-laser fabrication of photonic structures in glass: the role of glass composition,** Denise Krol, UC Davis (USA) [3-1]#175 ● **Laser machinable glass,** Hirotaka Koyo, Masanori Shojiya ,Keiji Tsunetomo, Nippon Sheet Glass Co., Ltd. (Japan) [3-2]#105 ● **Observation of the electron behavior inside the fused silica excited by F_2 and KrF excimer lasers,** Kotaro Obata, RIKEN(Japan); Garnov V.Serge, GPI(Russia); Koji Sugioka, Katsumi Midorikawa, RIKEN (Japan) [3-3]#083 ● **Active photo-physical processes in the pulsed UV nanosecond laser exposure of photostructurable glass ceramic materials,** Frank E. Livingston, Paul M. Adams, Henry Helvajian, The Aerospace Corporation (USA) [3-4]#167

S: Student

Tuesday 11 May, Room 1

14:00	**4. Nanotechnology (14:00 -15:30) Chair: J. Dubowski**
	● **(Invited) Volume change thermal lithography technique for ultra-high density optical ROM mastering process,** Masashi Kuwahara, National Institute of Advanced Industrial Science and Technology (AIST) (Japan) [4-1]#030 ● **Characteristics of nanopatterning on photoresist using a near-field scanning optical microscope with a He-Cd laser,** Sungho Jeong, Sangjin Kwon, Kwangju Institute of Science & Technology; Wonseok Chang, Korea Institute of Machinery & Materials (South Korea) [4-2]#084 ● **Characterization of low dimensional graphite nanoparticles prepared by laser ablation by the surface enhanced Raman spectroscopy with a AFM tips,** Satoru Nishio, Chihiro Kanezawa, Hiroshi Fukumura, Tohoku University (Japan) [4-3]#073 ● **Synthesis, characterization and photoluminescence of Ga_2O_3 nanofibers,** Hwee Ming (Jenny) Lam, Minghui Hong, Data Storage Institute; Shu Yuan, Nanyang Technological Univ.; Tow Chong Chong, Data Storage Institute (Singapore) [4-4]#032**S**
15:30	**Coffee Break (15:30 - 16:00)**
16:00	**5. 3D nano and microfabrication (16:00 - 17:30) Chair: H. Niino**
	● **(Invited) Two-photon 3D lithography: materials and applications,** Joseph W. Perry, Georgia Institute of Technology (USA) [5-1]#164 ● **Laser-driven multi-degrees-of-freedom nanomanipulators produced by two-photon microstereo-lithography**, Shoji Maruo, Yokohama National University; Koji Ikuta, Nagoya University; Masafumi Ogawa, Nagoya University (Japan) [5-2]#112 ● **Photo-fabrication of three-dimensional photonic crystals by multi-beam femtosecond laser interference,** Zhicong Meng, Kyoto University, Fukui Institute for Fundamental Chemistry (FIFC) Jinhai Si, Jianrong Qiu, Photon Craft Project, JST; Kazuyuki Hirao, Kyoto University (Japan) [5-3]#063 ● **Laser microfabrication of three-dimensional photonic crystal templates in polymers,** Vygantas Mizeikis, Saulius Juodkazis, Vygandas Jarutis, Hiroaki Misawa, Hokkaido University (Japan) [5-4]#053

S: Student

Wednesday 12 May, Noh Hall

9:00	**6. Special Session 1-3: Laser microfabrication of glass ceramic materials and novel applications (9:00 - 10:30) Chair: D. Krol**
	● **(Invited) Nanometer-scale mechanisms of laser-induced structural changes in chalcogenide glasses,** Alexander V Kolobov, Junji Tominaga, Kazunobu Tanaka, AIST (Japan) [6-1]#173 ● **Direct-writing and debris-free laser micromachining on fused silica and glass,** Ji-Yen Cheng, Academia Sinica, Institute of Applied Science and Engineering Research; Yen Meng-Hua, Young Tai-Horng, National Taiwan University (Taiwan) [6-2]#048 ● **Nanomachining of inorganic transparent materials by an x-ray exciton method,** Tetsuya Makimura, Youichi Kenmotsu, Univ. of Tsukuba; Kiminori Kondo, Osaka Univ.; Michiaki Mori, Japan Atomic Energy ResearchInstitute; Kouichi Murakami, University of Tsukuba (Japan) [6-3]#090 ● **Laser processing of photonic structures in low temperature co-fired ceramics for opto-electronic integration,** Krzysztof M. Nowak, Heriot-Watt Univ. (Scotland); Xiaobo Liu, Univ. of Leeds (UK); J.Howard Baker, R. Denis Hall, Heriot-Watt Univ. (Scotland); Animesh Jha, J.Andrew Bell, Univ. of Leeds; Joe Keddie, Univ. of Surrey (UK) [6-4]#075
10:30	**Coffee Break (10:30 - 11:00)**
11:00	**7. Special Session 1-4: Laser microfabrication of glass ceramic materials and novel applications (11:00 - 12:30) Chair: S. Nolte**
	● **(Invited) Laser modification of glass-ceramics structure and properties: the new view on to the old materials,** Vadim Veiko, N.V. Nikonorov, Q. K. Kieu, St. Petersburg State University of Information Technologies (Russia) [7-1]#002 ● **Replicating of polymer micro-fluidic devices using laser fabricated glass-ceramic stamps,** Joohan Kim, Xianfan Xu, Purdue University (USA) [7-2]#115 ● **Fabrication of high-temperature-resistant laser-induced gratings with large refractive index modulation,** Hiroaki Nishiyama, Isamu, Miyamoto, Osaka Univ.; Kenji Kintaka, Junji Nishii, National Institute of Advanced Industrial and Science Technology (Japan) [7-3]#095S ● **Spherical microcavity resonator fabrication based on laser technology,** Q. K. Kieu, Vadim Veiko, St. Petersburg State University of Information Technologies (Russia) [7-4]#005S
12:30	**Lunch (12:30 - 14:00)**
14:00	**8. Joint Session (Ultrafast laser processing of glass/ceramics) 1 (14:00 - 15:30) Chair: K. Sugioka**
	● **(Invited) Ultrafast laser processing - new possibilities for photonic device production,** Stefan Nolte, Matthias Will, Jonas Burghoff, Andreas Tunnermann, Friedrich-Schiller-University Jena (Germany) [8-1]#104 ● **Microstructuring of optical waveguides by femtosecond and picosecond laser radiation,** Ralph Wagner, Georg Schlaghecken, Leonid Moiseev, Jens Gottmann, Alexander Horn, Ernst Wolfgang Kreutz, Udo Putz, Lehrstuhl fuer Lasertechnik, RWTH-Aachen (Germany) [8-2]#134 ● **Fabrication of nano-grating inside transparent materials by using a single femtosecond laser beam,** Yasuhiko Shimotsuma, Kyoto university; Jianrong Qiu, JST (Japan); G. Peter Kazansky, Univ. of Southampton (UK); Kazuyuki Hirao, Kyoto Univ. (Japan) [8-3]#021 ● **Three-dimensional recording and structuring of chalcogenide glasses by femtosecond pulses,** Hiroaki Misawa, Saulius Juodkazis, Toshiaki Kondo, Andrei Rode, Eugene Gamal, Shigeki Matsuo, Hokkaido University (Japan) [8-4]#110
15:30	**Coffee Break (15:30 - 15:50)**
15:50	**9. Joint Session (Ultrafast laser processing of glass/ceramics) 2 (15:50 - 17:20) Chair: H. Helvajian**
	● **(Invited) Waveguide structures in heavy-metal oxide glasses written with fs laser pulses,** Javier Solis, Jan Siegel, Instituto de Optica, CSIC, (Spain) [9-1]#031 ● **Space-selective precipitation and control of metal nanoparticles inside transparent materials by irradiation of a femtosecond laser and successive annealing,** Qiu Jianrong, Photon Craft Project, CAS and JST (Japan); Jiang Xiongwei, Zhu Congshan, Chinese Academy of Sciences (China); Si Jinhai, Japan Science and Technology Agency; Kazuyuki Hirao, Kyoto Univ. (Japan) [9-2]#013 ● **3D integration of microoptics and microfluidics in glass using a femtosecond laser direct-writing,** Ya Cheng, Koji Sugioka, Katsumi Midorikawa, RIKEN (Japan) [9-3]#029 ● **Ultrafast laser processing of transparent materials,** Zengbo Wang, Hong Minghui, Luk'yanchuk Boris, Lin Ying, Chong Towchong, National University of Singapore (Singapore) [9-4]#077
	Noh Play (18:00 – 18:30) at Noh Hall **Banquet (18:30 – 20:30)**

S: Student

Wednesday 12 May, Room 1

9:00	**10. Organic materials processing (9:00 - 10:30) Chair: T. Lippert**
	● **(Invited) Recent experimental and theoretical advances in microdrilling of polymers with ultraviolet laser beams**, Sylvain Lazare, Vladimir Tokarev, Universite de Bordeaux 1 (France) [10-1]#006 ● **UV laser-assisted fabrication of integrated-optical sensor components in a planar polymer chip,** Simeon Metev, Carsten Wochnovski, Michael Koerdt, Frank Vollertsen, BIAS-Bremen Inst. Appl. Beam Technol. (Germany) [10-2]#103 ● **F_2 laser ablation of silicone rubber,** Hiromitsu Takao, Masayuki Okoshi, Narumi Inoue, National Defense Academy (Japan) [10-3]#042S ● **Fabrication of cylindrical plastic microlens using Er:YAG laser beam - influence of process parameters,** Hery Mochtady, Keiji Yamada, Takeshi Ueda, Akira Hosokawa, Kanazawa University (Japan) [10-4]#067S
10:30	**Coffee Break (10:30 - 11:00)**
11:00	**11. Medical and biological applications(11:00 - 12:30) Chair: H. Misawa**
	● **(Invited) Femtosecond laser application in biotechnology and medicine,** Karsten Koenig, IBMT Fraunhofer Institut (Germany) [11-1]#020 ● **Nondestructive processing of cultured animal cells by femtosecond laser induced shockwave,** Yoichiroh Hosokawa, Jyun-ichi Takabayashi, Osaka Univ; Shigenori Miura, Kyoto Univ, Ryohei Yasukuni, Osaka Univ.;Chisa Shukunami, Yuji Hiraki, Kyoto Univ.; Hiroshi Masuhara, Osaka Univ. (Japan) [11-2]#129 ● **Fabrication of titanium dental implants by Selective Laser Melting,** Edson Costas Santos, Kozo Osakada, Masanori Shiomi, Masanori Morita, Osaka Univ. Fumie Abe, AIST(Japan) [11-3]#106 ● **Laser structuring and modification of polymer surfaces for chemical and medical micro components,** Elke Bremus-Koebberling, Arnold Gillner, Fraunhofer-Institute for Laser Technology (Germany) [11-4]#141
12:30	**Lunch (12:30 - 14:00)**
14:00	**12. Welding 1 (14:00 - 15:30) Chair: R. Holtz**
	● **(Invited) SHADOW- a new laser beam welding technology, basics and applications,** Alexander M. Olowinsky, Kilian Klages, Thorsten Kramer, Jens Gedicke, Frauhofer Insitute for Lasertechnology (Germany) [12-1]#017 ● **High speed micro welding of thin metal sheets,** Andreas Russ, Markus Leimser, Friedrich Dausinger, IFSW, University of Stuttgart (Germany) [12-2]#011 ● **Laser welding between transparent materials using ultrashort laser pulses,** Takayuki Tamaki, Wataru Watanabe, Osaka University, Junji Nishii, National Institute of Advanced Industrial Science and Technology (AIST), Kazuyoshi Itoh, Osaka Univ. (Japan) [12-3]#034S ● **Laser spot welding of electronic micro parts,** Jeihad Zeadan, Andreas Ostendorf, Thorsten Temme, Laser Zentrum Hannover (Germany) [12-4]#012
15:30	**Coffee Break (15:30 - 15:50)**
15:50	**13. Welding 2 (15:50 - 17:20) Chair: A. Olowinsky**
	● **(Invited) Advanced laser micro welding by pulse control - New welding strategies with pulsed Nd:YAG lasers,** Ronald Holtz, LASAG AG (Switzerland) [13-1]#176 ● **Laser micro welding of copper and aluminium using filler materials,** Gerd Esser,. BLZ Bayerisches Laserzentrum gGmbH; Ihor Mys, University of Erlangen; Michael Schmidt, BLZ gGmbH (Germany) [13-2]#068 ● **Welding metals with sub-500 watt sealed CO_2 lasers,** Leonard.R. Migliore, Coherent, Inc.(USA)[13-3]#037 ● **Optimization of grain boundary character distribution by combining laser surface melting with heat treatment,** Sen Yang, Zhanjie Wang, Hiroyuki Kokawa, Tohoku Univ. (Japan) [13-4]#022
	Noh Play (18:00 – 18:30) at Noh Hall **Banquet (18:30 – 20:30)**

S: Student

Wednesday 12 May, Room 2

9:00	**14. EUV & Ultra-short Lasers (9:00 - 10:40) Chair: T. Okada**
	• **Development of EUV light source by CO_2 laser-produced Xe plasma,** Hiroki Tanaka, Kouzi Akinaga, Akihiko Takahashi, Tatsuo Okada, Kyushu Univ. (Japan) [14-1]#027S • **Performance of liquid xenon jet laser-produced-plasma light source for EUV lithography,** Takashi Suganuma, Tamotsu Abe, Hiroshi Komori, Yuichi Takabayashi, Akira Endo, EUVA Hiratsuka R&D Center (Japan) [14-2]#056 • **High-power, single-mode, all-fiber femtosecond laser system and its use in continuum generation,** Jeffrey W. Nicholson, Andrew Yablon, F.Man Yan, OFS Labs (USA) [14-3]#150 • **Fiber based ultra-short pulsed lasers and their applications for semiconductor and electronics industries,** Bo Gu, GSI Lumonics (USA) [14-4]#136 • **Theoretical analysis of second harmonic generation for femtosecond laser pulses considering pulse broadening,** Kazufumi Nomura, Etsuji OHMURA, Isamu MIYAMOTO, Osaka Univ. (Japan) [14-5]#146S
10:40	**Coffee Break (10:40 - 11:00)**
11:00	**15. Optics (11:00 - 12:20) Chair: T. Ooie**
	• **Characteristic of diffractive optical element for arbitrary pattern beam shaping,** Takayuki Hirai, Keiji Fuse, Keiji Ebata, Kenichi Kurisu, Sumitomo Electric Industries; Kyoji Matsushima, Kansai Univ. (Japan) [15-1]#124 • **Optical phase control of LD light for precise focusing,** Takahisa Jitsuno, Osaka Univ.; Keiu Okumura; NALUX Co. Ltd.; Katsuya Kazama, Y. E. Data Co. Ltd. (Japan) [15-2]#143 • **Trepanning optic for high precision laser drilling of metals,** Christian Foehl, Forschungsgesellschaft fuer Strahlwerkzeuge; Friedrich Dausinger, Detlef Breitling, Institut fuer Strahlwerkzeuge; Steffen Sommer, Forschungsgesellschaft fuer Strahlwerkzeuge (Germany) [15-3]#039S • **A different approach for the computation of Refractive index change in Laser diodes for different injection levels,** Fatih V. Celebi, Baskent University; Kenan Danisman, Erciyes University (Turkey) [15-4]#138S
12:20	**Lunch (12:20 - 14:00)**
14:00	**16. PLD and advanced materials synthesis (14:00-15:20) Chair: S. Nishio**
	• **Approaches to prepare core-shell structured Si nanocrystal by pulsed laser ablation,** Ikurou Umezu, Konan Univ.; Toshiharu Makino, AIST; Mitsuru Inada, Ken-ichi Yoshida, Konan, Akira Sugimura, Konan Univ. (Japan) [16-1]#082 • **Room-temperature fabrication of b-FeSi2 microprecipitates by pulsed laser deposition,** Aiko Narazaki Tadatake Sato, Yoshizo Kawaguchi, Hiroyuki Niino, National Institute of Advanced Industrial Science and Technology (AIST) (Japan) [16-2]#061 • **Pulsed laser deposition of group III nitrides,** Hiroshi Fujioka, Jitsuo Ohta, Takashi Honke, Atsushi Kobayashi, Masaharu Oshima, The University of Toky (Japan) [16-3]#096 • **PLD of high-k dielectric films on silicon,** Juergen Reif, Markus Ratzke, Mathias Kappa, Tzanimir Arguirov, Simona Kouteva-Arguirova, Dirk Wolfframm, P.Reiner Schmid, Brandenburgische Technische Universitaet (BTU) Cottbus (Germany) [16-4]#123
15:20	**Coffee Break (15:20 – 15:40)**
15:40	**17. Laser-matter interaction and treatment (15:40 - 17:20) Chair: V. Veiko**
	• **Formation of polycrystalline-silicon-germanium films by pulsed laser-induced rapid annealing,** Toshiyuki Sameshima, H WATAKABE, Tokyo University of Agriculture & Technology; H KANNO, T SADOH, M MIYAO, Kyushu Univ. (Japan) [17-1]#065 • **Excimer laser annealing of ferroelectric SrBi2Ta2O9 thin films prepared by metalorganic chemical vapor deposition,** Satoko Kato, Kyouhei Funatsu, Osamu Kato, Shoji Kanazawa, Kazuya Sano, The Japan Steel Works Ltd. (Japan) [17-2]#139 • **F_2 laser-induced damage on VUV transparent fluoride crystals,** Yoshizo Kawaguchi, Aiko Narazaki, Tadatake Sato, Ryozo Kurosaki, Hiroyuki Niino, National Institute of Advanced Industrial Science and Technology (AIST); Hiroki Sato, Tomohiko Satonaga, Tsuguo Fukuda, Tohoku University (Japan) [17-3]#093 • **Transient stress filed in a sample induced by intense laser pulses,** Yoshiro Ito, Junichi Tadano, Masanao Matsukura, Nagaoka Univ.of Technology (Japan) [17-4]#160 • **Bragg grating micromachining in optical waveguides using pulsed UV laser radiation**, S.Pissadakisa, Institute of Electronic Structure and Laser, Foundation for Research and Technology-Hellas (Greece), M.N.Zervas, L.Reekie & J.S.Wilkinson,Optoelectronics Research Centre, University of Southampton (UK) [17-5]#181
	Noh Play (18:00 – 18:30) at Noh Hall, Banquet (18:30 – 20:30)

S: Student

Thursday 13 May, Noh Hall

9:00	**18. Special Session 2-1: Advances of high-power single-mode fiber lasers (9:00 - 10:30) Chair: A. Tuennermann**
	● **(Invited) Tailoring fiber laser specifications for applications from micro-machining (100W) to cutting (1kW),** S. Woods, Southampton Photonics (UK) [18-1]#016 ● **Continued advancements in the designs of double clad fibres for use in high output power fiber lasers and amplifiers,** Adrian L. G. Carter, Kanishka Tankala, Bryce Samson, P.David Machewirt, Victor Khitrov, H.Upendra Manyam, Nufern (USA) [18-2]#154 ● **Reliability of high-power multi-mode pump modules,** Silke Pflueger, Erik Zucker, Victor Rossin, Ed Wolak, JDS Uniphase Corp. (USA) [18-3]#155 ● **Fiber laser coherent array for power scaling of single-mode fiber laser,** Akira Shirakawa, Keigo Matsuo, Ken-ichi Ueda, University of Electro-Communication (Japan) [18-4]#158
10:30	**Coffee Break (10:30 - 11:00)**
11:00	**19. Special Session 2-2: High-power single-mode fiber lasers and applications (11:00 - 12:40) Chair: S. Woods**
	● **(Invited) Fiber lasers and amplifiers - Novel avenues to real world applications of ultrashort lasers,** Andreas Tuennermann, Fraunhofer Institute; Stefan Nolte, Univ. of Jena, (Germany) [19-1]#018 ● **>10 watt fiber laser source with 0.5-5 MHz repetition rate and 0.5-1.5 nsec pulse width,** Thomas J. Kane, A.Laura Smoliar, A.Mark Arbore, Manuel Leonardo, R.David Balsley, Gregory Keaton, Lightwave Electronics Corporation (USA) [19-2]#151 ● **Micro-machining using 1.55mm band fiber pulse laser with 10kW peak power,** Junya Maeda, Minoru Yoshida, MITSUBISHI CABLE INDUSTRIES. LTD. (Japan) [19-3]#004 ● **Reliability by Design: Tailoring Fiber Lasers that Last and Scale with Power,** Stuart Woods, Southampton Photonics (UK) [19-5]#180
12:40	**Lunch (12:40 - 13:50)**
13:50	**20. Special Session 2-3: Industrial applications of high-power single-mode fiber lasers (13:50-15:50) Chair: I. Miyamoto**
	● **(Invited) Fiber laser - new opportunities in precision microfabrication -,** Valentin Gapontsev, IPG Laser GmbH (Germany) [20-1]#015 ● **Fiber and diode laser applications,** Andrew Leuzinger, Gregory Kahler, JDS Uniphase Corporation (USA) [20-2]#156 ● **(Invited) Applications of high-power single-mode fiber lasers to novel microwelding and microcutting,** Isamu Miyamoto, Takeshi Kosumi, Soe-Jeon Park, Osaka university; Koji Watanabe, Industrial Research Institute of Ishikawa; Toshihiko Oie, AIST, Hiroaki Uragishi, SUNX Co. (Japan) [20-3]#137 ● **High Speed precision cutting with a 200W single-mode fiber laser,** Hiroaki Uragishi, SUNX Limited; Isamu Miyamoto, Osaka University (Japan) [20-4]#125 ● **Joining process of plastic tube by single-mode fiber laser and its application,** Masayoshi Hanai, Fine Device (Japan) [20-5]#169
16:00	**Short Presentation (16:00 - 17:30) at Noh Hall, Chair: A. Hirose and W. Watanabe**
	Please refer to the Poster Program.
17:30	**Poster Presentation (17:30 - 19:30) at Reception Hall (2nd Floor)**

S: Student

Thursday 13 May, Room 1

9:00	**21. Micro machining (9:00 - 10:30) Chair: A. Pique**
	• **(Invited) Laser micromachining of optical devices,** Thomas Lippert, Giedrius Kopitkovas, Christian David, Jens Gobrecht, Alexander Wokaun, Paul Scherrer Institut, (Switzerland) [21-1]#035 • **Micromachining of transparent materials by Laser-Induced Plasma-Assisted Ablation (LIPAA),** Yasutaka Hanada, Koji Sugioka, Kotaro Obata, RIKEN; Humihiro Takase, Tokyo Denki Univ.; Iwao Miyamoto, Tokyo Univ. of Science; Hiroshi Takai, Tokyo Denki Univ.; Katsumi Midorikawa, RIKEN (Japan) [21-2]#054S • **Low resistivity glass metallization by laser induced plasma assisted ablation,** Minghui Hong, Data Storage Institute; B.C. Lim, National University of Singapore; K.D.Ye, T.C.Chong, National University of Singapore & Data Storage Institute (Singapore); K Sugioka, K. Midorikawa, RIKEN (Japan) [21-3]#081 • **Laser micro machining of ultraviolet infrared simultaneous irradiation,** Akihiro Kai, Yoshiyuki KAWAMURA, Fukuoka Institute of Technology (Japan) [21-4]#080S
10:30	**Coffee Break (10:30 - 10:50)**
10:50	**22. Manufacture of micro devices and systems (10:50 - 12:40) Chair: X. Xu**
	• **(Invited) Manufacture of mesoscale energy storage systems by laser-direct write,** Craig B. Arnold, Princeton University, E Thomas Sutto, Naval Undersea Warfare Center, Michael Ollinger, Heungsoo Kim, Alberto Pique, Naval Research Laboratory (USA) [22-1]#109 • **Application of laser direct-write techniques for embedding electronic and micropower components,** Alberto Pique, Naval Research Laboratory; A.Scott Mathews, Catholic University of America; C.Y.Ray Auyeung, Naval Research Laboratory; B.Craig Arnold, Princeton University; Michael Ollinger, Heungsoo Kim, Naval Research Laboratory; E.Tom Sutto, Naval Surface Warfare Center (USA) [22-2]#092 • **Advanced laser processing for Integrated biophotonics on a chip,** Peter Herman, Andrew Yick, Jianzhao Li, Chris Valdivia, Nigel Munce, Lothar Lilge, University of Toronto (Canada) [22-3]#178 • **Laser manufacturing of ceramic micro components,** Arnold Gillner, Dipl-Ing Claudia, Fraunhofer-Institute for Laser Technology (Germany) [22-4]#142 • **Deformation characteristics of plastics in YAG laser forming,** Yasuhiro Okamoto, Okayama University; Isamu Miyamoto, Osaka University; Yoshiyuki Uno, Tomohiko Takenaka, Okayama University (Japan)[22-5]#127
12:40	**Lunch (12:40 - 14:00)**
14:00	**23. Fundamentals of ultrafast laser processing (14:00 - 15:40) Chair: J. Reif**
	• **(Invited) Ultrafast optical and electrical diagnostics of laser-induced modification of transparent materials**, Serge V. Garnov, A.M. Prokhorov General Physics Institute of Russian Academy of Sciences (Russia) [23-1]#060 • **(Invited)Temporal pulse manipulation and adaptive optimization in ultrafast laser processing of materials,** Razvan Stoian, Alexandre Mermillod, Sebastian Winkler, Arkadi Rosenfeld, V.Ingolf Hertel, Max Born Institute, (Germany) [23-2]#038 • **Micro-machining using temporally shaped ultrafast pulse bursts,** Ihtesham H. Chowdhury, Xianfan Xu, Andrew M. Weiner, ,Purdue University (USA) [23-3]#114 • **A plasma model with quantum treatments for femtosecond laser ablation of glasses,** Lan Jiang, Hai-Lung Tsai, University of Missouri-Rolla (USA) [23-4]#003
15:40	**Coffee Break (15:40 - 16:00)**
16:00	**Short Presentation (16:00 - 17:30) at Noh Hall, Chair: W. Watanabe and A. Hirose**
	Please refer to the Poster Program.
17:30	**Poster Presentation (17:30 - 19:30) at Reception Hall (2nd Floor)**

S: Student

Friday 14 May, Noh Hall

9:00	**24. Drilling and Cutting (9:00 - 10:40) Chair: F. Dausinger**
	● **Melt ejection during percussion drilling of micro holes in stainless steel and nickel-based superalloy by pulsed Nd:YAG laser radiation,** Lena Trippe, Jens Willach, Ernst Wolfgang Kreutz, Wolfgang Schulz, Jochen Petereit, Stefan Kaierle, Lehrstuhl fur Lasertechnik, RWTH Aachen, (Germany) [24-1]#131S ● **Cut-off characteristic of CBN and diamond stick stone with pulsed YAG laser laser cutting of super abrasive stone,** Tatsuaki Furumoto, Industrial Research Institute of Ishikawa; Takashi Ueda, Kanazawa university, Yoshinori Funada, Industrial Research Institute of Ishikawa; Yoshiaki Onchi, MIZUHO corporation, (Japan) [24-2]#078 ● **Fast cutting of ceramics with the water jet guided ND:YAG Laser,** Bernold Richerzhagen, Ochelio Sibailly, Christophe Boillat, Synova (Switzerland) [24-3]#085 ● **Thermomechanical damage analysis of through-hole formation by laser drilling for 3D opto-electronic device assembly,** Kiyokazu Yasuda, Kozo Fujimoto, Osaka University (Japan) [24-4]#148 ● **Laser milling - a practical industrial solution for machining a wide variety of materials,** Matt Henry, Paul Harrison, Ian Henderson, Michael Brownell, .Powerlase Ltd. (UK) [24-5]#074
10:40	**Coffee Break (10:40 - 11:00)**
11:00	**25. Industrial applications 1 (11:00 - 12:40) Chair: A. Gillner**
	● **Chipping-free dicing of III/V semiconductor materials with the water jet guided laser,** Bernold Richerzhagen, Ochelio Sibailly, Akos Spiegel, Thomas Nilsson, Synova (Switzerland) [25-1]#087 ● **Correspondence between material processing efficiency and laser pulse width for Q-switched ultraviolet wavelength lasers,** Edward C. Rea, Jr., Corey Dunsky, Coherent, Inc. (USA) [25-2]#041 ● **The influence of physical characteristics on ablation effects occurring while UV laser assisted microengineering,** Andreas Ostendorf, Thorsten Temme, Frank Otte, Christian Kulik, Laser Zentrum Hannover e.V. (Germany) [25-3]#132 ● **Studies on laser microvia formation of copper coated dielectric laminate materials,** Francisco Villarreal, J. Colin Moorhouse, J. Jozef Wendland, J. Howard Baker, R. Denis Hall, P. Duncan Hand, Heriot Watt University (UK) [25-4]#120 ● **Acoustic emission monitoring during laser shock cleaning of silicon wafers,** T. Kim, J. M. Lee, S. H. Cho, IMT Co. Ltd.; T. H. Kim, Yonsei University (South Korea) [25-5]#051
12:40	**Lunch (12:40 - 14:00)**
14:00	**26. Industrial applications 2 (14:00-15:30) Chair: K. Washio**
	● **(Invited) Current status and future prospects of laser stereolithography**, Tsuneo Hagiwara, CMET Inc. (Japan) [26-1]#049 ● **Microfabrication of overhanging shape using LCD microstereolithography,** Gohki Oda, Takashi Yasuhiro, Takaya Miyoshi, Taeho Ha,.Osaka Univ.; Keiichi Kimura, Saitama Univ. (Japan) [26-2]#145S ● **Low resistivity thin film fabrication with laser annealing,** Dongjiang Wu, Dalian University of Technology (China); Hong Minghui, Ye Kaidong, Huang Sumei, Song Wendong, Data Storage Institute (Singapore) [26-3]#128 ● **Pulsed excimer lasers for thin film applications,** Ralph F. Delmdahl, Lambda Physik (Germany) [26-4]#001
15:30	**Closing Remark (15:30-15:40) at Noh Hall**

S: Student

Friday 14 May, Room 1

9:00	**27. Ultrafast laser ablation and treatment (9:00-10:20) Chair: P. Herman**
	• **Laser ablation threshold and etch rate comparison between the ultrafast Yb fiber-based FCPA laser and a Ti:sapphire laser for various materials**, Alan Arai, James Bovatsek, Lawrence Shah, Tadashi Yamamoto, Yuzuru Uehara, IMRA America, Inc. (USA) [27-1]#159 • **Prediction of damage threshold fluences for metal films by an ultrashort laser pulse,** Hai-Lung Tsai, Lan Iang, Nnu George, University of Missouri-Rolla (USA) [27-2]#014 • **Ablation of work hardening layers against stress corrosion cracking of stainless steel by repetitive femtosecond laser pulses,** Akihiko Nishimura, Eisuke Minehara, Takashi Tsukada, Masahiko Kikuchi, Junichi Nakano, Japan Atomic Energy Research Inst. (Japan) [27-4]#072 • **Femtosecond laser-driven shock quenching of the high-pressure phase of iron,** Tomokazu Sano, Hiroaki Mori, Etsuji Ohmura and Isamu Miyamoto, Osaka Univ., Osami Sakata, SPring-8 (Japan) [27-5]#009
10:20	**Coffee Break (10:20 - 10:50)**
10:50	**28. Ultrafast laser microstructuring (10:50 - 12:30) Chair: Y. Itoh**
	• **Short and ultrashort laser pulses: application driven comparison of source types,** Andreas Ostendorf, Christian Kulik, Laser Zentrum Hannover (Germany) [28-1]#166 • **Wide band-gap materials microprocessing by femtosecond laser pulses,** Egidijus Vanagas, Dmitry Tuzhilin, Pavel Rutkovski, ,Igor Kudryashov, Shoji Suruga, Tokyo Instruments, Inc. (Japan) [28-2]#098 • **Fabrication of precision micro holes and structures with smooth surfaces by a high repetition rate femtosecond laser,** Takayuki Nakaya, Daisuke Shibata, Hidetoshi Takeda, Hiroaki Toshima, Toshiro Kotaki, Kazuhiko Sunakawa, Yoichi Yaguchi, Namiki Precision Jewel Co., LTD. (Japan) [28-3]#040 • **Structures on human fingernail surface processed by use of a focused near-infrared femtosecond laser pulse,** Hayato Takagi, University of Tokushima; Akihiro Takita, Hirotsugu Yamamoto, Yoshio Hayasaki, Nobuo Nishida, The Univ. of Tokushima; Hiroaki Misawa, Hokkaido Univ. (Japan) [28-4]#070 • **Effect of material and structural parameters on microfabricated log-pile photonic crystal,** Wenhao Huang, Jiang Zhongwei, Yuan Dajun, Guo Rui, Xia Andong, University of Science and Technology of China (China) [28-5]#135
12:30	**Lunch (12:30 - 14:00)**
14:00	**29. Ultrafast laser nanoengineering (14:00-15:30) Chair: A. Ostendorf**
	• **(Invited) Nano-fabrication of solid materials with UV femtosecond pulses,** Jan-Hendrik Klein-Wiele, Jozsef Bekesi, Peter Simon, Laser-Laboratorium Gottingen e.V. (Germany) [29-1]#047**S** • **Formation of self-organized regular nanostructures upon femtosecond laser ablation,** Juergen Reif, Brandenburgische Technische Universitaet (BTU) Cottbus; Florenta Costache, BTU Cottbus and IHP; Sebastian Eckert, BTU Cottbus; Simona Kouteva-Arguirova, BTU Cottbus and IHP; Winfried Seifert, IHP Frankfurt (Germany); Olivier Gobert, Philippe Martin, Alexandre Semerok, CEA Saclay (France); Ionut Georgescu, MPI PCS Dresden; Michael Bestehorn, BTU Cottbus (Germany) [29-2]#122 • **Towards nanostructuring with femtosecond laser pulses,** Juergen Koch, Laser Zentrum Hannover e.V. (Germany); Takasumi Tanabe, Keio University (Japan); Frank Korte, Carsten Fallnich, Andreas Ostendorf, Boris Chichkov, N. Laser Zentrum Hannover e.V. (Germany) [29-3]#113 • **Generation of nano-sized materials by processing of thin film by interfering femtosecond laser beams,** Yoshiki Nakata, Tatsuo Okada, Mitsuo Maeda, Kyushu University (Japan) [29-4]#119
15:30	**Closing Remark (15:30-15:40) at Noh Hall**

30. Poster Session

S: Student

Thursday 13 May: 17:30 – 19:30, Reception Hall (2nd Floor)

- **Studies on the ablation mechanism and micro-machining in LiF crystals**, Xiaoxi Li, Jia ianqin, Feng Donghai, Xu Zhizhan, Chinese Academy of Science (China) [P01]#088
- **High efficiency Raman fiber lasers and frequency doubling,** Yan Feng, Huang, Shenhong, Akira Shirakawa, Ken-ichi Ueda, Univ. of Electro- Communications (Japan) [P03]#153
- **Development of EUV light source by CO_2 laser-produced plasma with nano-structured SnO_2 targets,** Hiroki Tanaka, Kouzi Akinaga, Akihiko Takahashi, Tatsuo Okada, Kyushu Univ. (Japan) [P04]#028S
- **Design of a chaotic optical communication system by using noise addition technique,** Fatih V. Celebi, Baskent University; Remzi Yildirim, Gazi University (Turkey) [P05]#147S
- **Study on high accuracy displacement interferometer for lithography application,** Zhaogu Cheng, Haijun Gao, Xiongliang Chai, Huijie Huang, Shanghai Institute of Optics and Fine Mechanics (China) [P06]#097
- **JAERI femtosecond pulsed and tens-kilowatts average-powered free-electron lasers and their applications of large-scaled non-thermal peering, cutting and drilling in nuclear industry,** Eisuke J. Minehara, Akihito Nishimura, Takashi Tsukada, Japan Atomic Energy Research Institute (Japan) [P07]#100
- **Nanoscale modification of DLC film surfaces with femtosecond laser pulses,** Naoki Yasumaru, Fukui National College of Technology; Kenzo Miyazaki, Kyoto University; Junsuke Kiuchi, Eyetec Co., Ltd.;Hiroyuki Magara, Industrial Technical Center of Fukui Pref. (Japan) [P08]#057
- **Micro-machining of metals and non-metal materials with picosecond lasers,** Gediminas Raciukaitis, Ekspla Ltd.; Marijus Brikas, Institute of Physics, (Lithuania) [P09]#044
- **Effect of nanosecond and femtosecond pulse duration of laser processing of polymeric membrane,** Kay Siang Tiaw, Minghui Hong, Data Storage Institute; Swee Hin Teoh, National University of Singapore (Singapore) [P10]#116
- **Comparison of laser-induced microstructuring and nanostructuring of silicon using nanosecond, picosecond and femtosecond pulses,** Nastaran Mansour, Nastaran Mansoura, Kazem Jamshidi Ghaleh, Shahid Beheshti University (Iran); David Ashkenasi, GmbH, (Germany) [P11]#170
- **Possiblity of controllable ablation by femtosecond lasers,** Atsushi Kinoshita, Osaka University; Atsushi Kinoshita, Kinki University; Masayuki Fujita, Masaki Hashida, Kyoto Univ, Yasukazu Izawa, Osaka Univ.; Takeyoshi Nakayama, Kinki University; Masahito Katto, Miyazaki Univ.; Kengo Nagashima, Kinki University (Japan) [P12]#172
- **fs laser processing of organic and inorganic materials: issues and results,** Kathleen Richardson, A. Zoubir, C. Lopez, C. Rivero, L. Petit, M. Richardson, University of Central Florida, (USA) [P13]#179
- **Femtosecond laser fabrication of microspike-arrays for field emitter on tungsten surface,** Tomokazu Sano, Masato Yanai, Yasumitsu Nomura, Etsuji Ohmura, Isamu Miyamoto, Yoshinori Hirata, Osaka Univ. (Japan) [P14]#010
- **Fluorescence from structures in human fingernail formed by use of a focused near-infrared femtosecond laser pulse,** Akihiro Takita, Hirotsugu Yamamoto, Yoshio Hayasaki, Nobuo Nishida, The Univ of Tokushima; Hiroaki Misawa, Hokkaido Univ. (Japan) [P15]#071
- **Application of femtosecond pulsed laser for optical devices,** Suk-Jae Jee, Jeon-Yang Oh, Jeong-Sik Woo, ,Phoco Co., Ltd; Man-Seop Lee, Ik-Bu Sohn, Information & Communications Univ. (South Korea) [P16]#045
- **Fabrication of photonic devices directly written in glass using femtosecond laser pulses,** Ik-Bu Sohn, Man-Seop Lee, Information & Communications University, Suk-Jae Jee, Chan-Sik Park, Phoco Co., Ltd. (South Korea) [P17]#052
- **Free carrier generation mechanism in photosensitive glass for modification by IR fs laser and UV ns pulse laser,** Tomohiro Hongo, Koji Sugioka; RIKEN, Hiroyuki Niino, AIST; Ya Cheng, RIKEN; Masashi Masuda, Tokyo University of Science; F Miyamoto, Tokyo Denki University; Katsumi Midorikawa, RIKEN (Japan) [P19]#094S
- **Microfabrication of glass plates by nanosecond FHG Nd:YAG Laser,** Susumu Nakamura, Shigeyuki Tanaka, Yoshiro Ito, Nagaoka University of Technology (Japan) [P20]#126
- **Fabrication of Microlens using a CO_2 laser**, Hiroshi Murotani, Kenji Nakamoto, Hideo Fukumoto, Moriaki Wakaki, Tokai University (Japan) [P21]#102
- **Laser direct write for release of SiO_2 MEMS and nano-scale devices,** Meg H. Abraham, Henry Helvajian, The Aerospace Corporation, (USA) [P22]#168
- **Production of biomolecule microarrays through laser induced forward transfer,** Pere Serra, Pradas Fernandez, Marcos Juan, Monica Colina, Jose Luis Morenza, Universitat de Barcelona (Spain) [P23]#066
- **Novel approach to process protein crystals using deep-UV laser,** Atsutoshi Murakami, Osaka Univ.; Hiroshi Kitano, Nikon Corp.; Hiroaki Adachi, Hiroyoshi Matsumura, Kazufumi Takano, Masashi Yoshimura, Yusuke Mori, OsakaUniv.; Masaaki Doi, Nikon Corp.Japan, Sasaki,Takatomo, Osaka Univ. (Japan) [P24]#101
- **Fabrication of protein microarrays composed of protein crystals by laser micro processing, and its application to reusable protein chips,** Chie Matsubara, Yoichiroh Hosokawa, Yong Wang, Hiroshi Yoshikawa, Osaka Univ.; Keiko Ikeda, Hajime Mori, Kyoto Institute of Technology; Hiroshi Masuhra, Osaka Univ. (Japan) [P25]#130
- **Ab Initio molecular orbital study on PDECB-based approach to low-temperature epitaxy of stoichiometric group-III nitrides,** Keiji Hayashi, Noriyoshi Omote, Kanazawa Institute of Technology (Japan) [P26]#059S
- **Neutral free radical beam for phase-selective epitaxy produced by the method of photo-deionization of negative ion beams,** Keiji Hayashi, Takashi Oseki, Takuo Kanayama, Kanazawa Institute of Technology (Japan) [P27]#058S
- **Nano-structured MnOx catalyst prepared by pulsed laser ablation,** Nobuyasu Suzuki, Yasunori Morinaga, Hidehiro Sasaki, Yuka Yamada, Matsushita Electric Industrial Co., Ltd. (Japan) [P28]#062
- **Synthesis of a variety of nano-structured ZnO by laser ablation deposition method,** Tatsuo Okada Buti Hartanto Agung, Yoshiki Nakata, Kyushu Univ. (Japan) [P29]#043
- **Influence of preparation conditions on hydrogen passivated Si nanoparticles formed by pulsed laser ablation in hydrogen gas,** Mitsuru Inada, Ikurou Umezu, Akira Sugimura, Konan Univ. (Japan) [P30]#108

- **Fabrication of silver nanoparticles in the form of solution and powder by laser ablation,** Teng San Ong, Li Hui Van, Minghiu Hong, Tow Chong Chong, Data Storage Institute / National University of Singapore (Singapore) [P31]#117
- **Solvent and wavelength effect of laser-synthesized carbon nanoparticle colloids on optical limiting,** Guoxin Chen, M. H CheHong, Z. B.Wang, H. I. Elim, W. Z. Chen, W. Ji, T. C. Chong, National Univ. of Singapor (Singapore) [P32]#033**S**
- **Carbon and silica coatings by UV laser spray,** Yoshikazu Yoshida, Toshinao Ootomo, Kentaro Nakamura, Toyo University (Japan) [P33]#076**S**
- **Creation of carbide in critical CO_2 by UV laser,** Taku Arai, Takaya Uchida, Takahiro Fukuda, Yoshikazu Yoshida, Toyo University (Japan) [P34]#089**S**
- **Method for nanoscale modification of materials,** Yuri Verevkin, Eric Daume, Vladimir Petryakov, Vladimir Bredikhin, Valentina Burenina, Vsevolod Korolikhin, Institute of Applied Physics Russian Academy of Science (Russia) [P35]#036
- **Lithography in UV photoresist using NSOM,** Ying Lin, M.H. Hong, W.J. Wang, T. C. Chong, National University of Singapore (Singapore) [P36]#079
- **Fabrication of micro-conductive patterns using laser ablation and selective electroless Ni-B plating,** Hyoung-Shik Kang, LG Electronics; Hye-Won Kim, Soon-Kug Hong, LG Production Engineering Research Center; Jae Hoon Lee, Dong Sig Shin, Korea Institute of Machinery & Materials; Sung Goon Kang, Hanyang Univ. (South Korea) [P37]#118
- **The dry laser cleaning of photoresist residues on Si and ITO substrate,** Kyoung-cheol Lee, Cheon Lee, Inha University (Korea) [P38]#050
- **Structural properties of excimer laser annealed p-type perovskite thin films,** Xiaomei Du, National Research Council of Canada; J. Jan Dubowski, Universite de Sherbrooke; Mike Post, Dashan Wang, James Tunney, National Research Council of Canada (Canada); M.Fadi El-Ghussein, B.Michael Kruger, M.Jerzy Wrobel, University of Missouri-Kansas City (USA) [P39]#121
- **Pulsed laser-induced electrical-current joule heating for crystallization of silicon thin films,** Toshiyuki Sameshima, N. Andoh, Tokyo University of Agriculture & Technology, (Japan) [P40]#064
- **Surface annealing of the nanostructure of β-Titanium alloys with KrF laser,** Sylvain Lazare, Universite de Bordeaux 1; Fabien Guillemot, Universite de Bordeaux 2; Vladimir Tokarev, Colette Eng Belin,. Universite de Bordeaux 1; Marie-Christine Porte-Durieu, Charles Baquey, Universite de Bordeaux 2 (France) [P41]#007
- **Improved resolution of submicron KrF laser ablation of polymers by a new filtered imaging irradiation,** Sylvain Sylvain Universite de Bordeaux 1; Francois Weisbuch, ST Microelectronics, Crolles; Vladimir Tokarev, Universite de Bordeaux 1; Dominique Debarre, Universite d'Orsay (France) [P42]#008
- **Ablation etching of GaN by F_2-KrF laser multiwavelength excitation process,** Takahiro Inamura, Takahiro Inamura, Tokyo Denki University; Kotaro Obata, Koji Sugioka, RIKEN; Hiroshi Takai, Tokyo Denki Univ., Katsumi Midorikawa, RIKEN (Japan) [P43]#177**S**
- **Water jet guided UV laser for fast and precise GaN processing in LED manufacturing,** Bernold Richerzhagen, Ochelio Sibailly, Akos Spiegel, Thomas Nilsson, Synova (Switzerland) [P44]#086
- **Analysis on laser drilling of printed circuit board with two-dimensional axisymmetric finite element method,** Satoru Noguchi, Etsuji Ohmura, Isamu Miyamoto, Osaka Univ. (Japan) [P45]#161
- **Laser cutting and sealing methods of capillary glass tube,** Gi-Jung Nam, Myeong-Hui Seo,Institute for Advanced Engineering; Yun-Suk Hong, Mokwon Univ.; Seong-Uk Moon, Kwang-Hyun Ryu, Institute for Advanced Engineering; Dong-Seob Ko, Mokwon Univ. (Korea) [P46]#163
- **High power diode laser bonding process between tape-carrier package and a glass panel with anisotropic conductive film,** Gi-Jung Nam, Myeong-Hui Seo, Seong-Uk Moon, Institute for Advanced Engineering; Kwang-Hyun Ryu, Nam-Ic Kwon, Hankuk Univ. of Foreign Studies; No-Heung Kwak, Jettech LTD. (Korea) [P47]#162
- **Investigation of galvanic corrosion in laser-welded stainless steel sheets,** Chi-Tat Kwok, Siu Lung Fong, University of Macau, (Macau), Fai Tsun Cheng, Hau Chung Man, The Hong Kong Polytechnic University, (Hong Kong) [P48]#019
- **Laser soldering of Sn-Ag-Cu and Sn-Zn-Bi lead-free solder pastes,** Sumio Nakahara, Junichi Takahashi, Shigeyoshi Hisada, Takeyoshi Fujita, Kansai University (Japan) [P49]#099**S**
- **Research on laser fabrication weldability of BT20 titanium alloy,** S. L. Gong, L. Chen, W. Yao, National Key Laboratory for High Eneregy Density Beam Processing Technology, Beijing Aeronautics Manurfacturing Technology Research Institute (China) [P50]#149
- **Laser based induction of the two-way memory effect into shape memory alloy components,** Jens Bunte, A. Ostendorf, S. Paschko, A. von Busse, J. Bunte, Laser Zentrum Hannover e.V. (Germany) [P51]#165
- **Analysis of microkeyhole welding by high-power single-mode fiber laser,** Takashi Kosumi, Soe-Jeon Park, Osaka Univ.; Koji Watanabe, Industrial Research Institute of Ishikawa; Toshihiko Ooie, National Institute of Advanced Industrial Science and Technology; Isamu Miyamoto, Osaka Univ. (Japan) [P52]#144
- **Formation of green photoluminescent undoped zinc oxide film involving UV laser irradiation of a sol-gel derived precursor,** Toshihiko Ooie, National Institute of Advanced Industrial Science and Technology Single- Molecule Bioanalysis Laboratory (AIST); Kazuyuki Hayashi, Ehime Univ. Toshimi Nagase, AIST, Takao Araki, Ehime Univ. (Japan) [P53]#152
- **Through-hole processing of Aluminum Nitride and Silicon Wafers using Short Pulse Lasers,** Kyoichi Deki, Ariake National College of Technology, Masaki Kanai, ISIR, Osaka University, Hiroyuki Nakamura, Tokyo Cathode Laboratory Co.,Ltd. (Japan) [P54]#182

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During the poster session, beer, soft drink and light snack will be served!

Thursday 13 May, Noh Hall

16:00

Short Presentation (16:00 - 17:30) at Noh Hall, Chair: A. Hirose and W. Watanabe

1. **Development of EUV light source by CO_2 laser-produced plasma with nano-structured SnO_2 targets,** Hiroki Tanaka, Kouzi Akinaga, Akihiko Takahashi, Tatsuo Okada, Kyushu Univ. (Japan) [P04]#028**S**
2. **Study on high accuracy displacement interferometer for lithography application,** Zhaogu Cheng, Haijun Gao, Xiongliang Chai, Huijie Huang, Shanghai Institute of Optics and Fine Mechanics (China) [P06]# 097
3. **Micro-machining of metals and non-metal materials with picosecond lasers,** Gediminas Raciukaitis, Ekspla Ltd.; Marijus Brikas, Institute of Physics, (Lithuania) [P09]#044
4. **fs laser processing of organic and inorganic materials: issues and results,** Kathleen Richardson, A. Zoubir, C. Lopez, C. Rivero, L. Petit, M. Richardson, University of Central Florida, (USA) [P13]#179
5. **Femtosecond laser fabrication of microspike-arrays for field emitter on tungsten surface,** Tomokazu Sano, Masato Yanai, Yasumitsu Nomura, Etsuji Ohmura, Isamu Miyamoto, Yoshinori Hirata, Osaka Univ. (Japan) [P14]#010
6. **Fluorescence from structures in human fingernail formed by use of a focused near-infrared femtosecond laser pulse,** Akihiro Takita, Hirotsugu Yamamoto, Yoshio Hayasaki, Nobuo Nishida, The Univ of Tokushima; Hiroaki Misawa, Hokkaido Univ. (Japan) [P15]#071
7. **Application of femtosecond pulsed laser for optical devices,** Suk-Jae Jee, Jeon-Yang Oh, Jeong-Sik Woo,, Phoco Co., Ltd; Man-Seop Lee, Ik-Bu Sohn, Information & Communications Univ. (South Korea) [P16]#045
8. **Fabrication of photonic devices directly written in glass using femtosecond laser pulses,** Ik-Bu Sohn, Man-Seop Lee, Information & Communications University, Suk-Jae Jee, Chan-Sik Park, Phoco Co., Ltd. (South Korea) [P17]#052
9. **Free carrier generation mechanism in photosensitive glass for modification by IR fs laser and UV ns pulse laser,** Tomohiro Hongo, Koji Sugioka; RIKEN, Hiroyuki Niino, AIST; Ya Cheng, RIKEN; Masashi Masuda, Tokyo University of Science; F Miyamoto, Tokyo Denki University; Katsumi Midorikawa, RIKEN (Japan) [P19]#094**S**
10. **Laser direct write for release of SiO_2 MEMS and nano-scale devices,** H. Meg, Abraham, Henry Helvajian, The Aerospace Corporation, (USA) [P22]#168
11. **Synthesis of a variety of nano-structured ZnO by laser ablation deposition method,** Tatsuo Okada Buti Hartanto Agung, Yoshiki Nakata, Kyushu Univ. (Japan) [P29]#043
12. **Solvent and wavelength effect of laser-synthesized carbon nanoparticle colloids on optical limiting,** Guoxin Chen, M. H CheHong, Z. B.Wang, H. I. Elim, W. Z. Chen, W. Ji, T. C. Chong, National Univ. of Singapor (Singapore) [P32]#033**S**
13. **Structural properties of excimer laser annealed p-type perovskite thin films,** Xiaomei Du, National Research Council of Canada; J. Jan Dubowski, Universite de Sherbrooke; Mike Post, Dashan Wang, James Tunney, National Research Council of Canada (Canada); M.Fadi El-Ghussein, B.Michael Kruger, M.Jerzy Wrobel, University of Missouri-Kansas City (USA) [P39]#121
14. **Ablation etching of GaN by F_2-KrF laser multiwavelength excitation process,** Takahiro Inamura, Takahiro Inamura, Tokyo Denki University; Kotaro Obata, Koji Sugioka, RIKEN; Hiroshi Takai, Tokyo Denki University, Katsumi Midorikawa, RIKEN (Japan) [P43]#177**S**
15. **Investigation of galvanic corrosion in laser-welded stainless steel sheets,** Chi-Tat Kwok, Siu Lung Fong, University of Macau, (Macau), Fai Tsun Cheng, Hau Chung Man, The Hong Kong Polytechnic University, (Hong Kong) [P48]#019
16. **Laser soldering of Sn-Ag-Cu and Sn-Zn-Bi lead-free solder pastes,** Sumio Nakahara, Junichi Takahashi, Shigeyoshi Hisada, Takeyoshi Fujita, Kansai University (Japan) [P49]#099**S**
17. **Laser based induction of the two-way memory effect into shape memory alloy components,** Jens Bunte, A. Ostendorf, S. Paschko, A. von Busse, J. Bunte, Laser Zentrum Hannover e.V. (Germany) [P51]#165

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Special Acknowledgement

We wish to thank the following for their contribution to the success of this conference:

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We also wish to thank the following organizations for their support to this conference.

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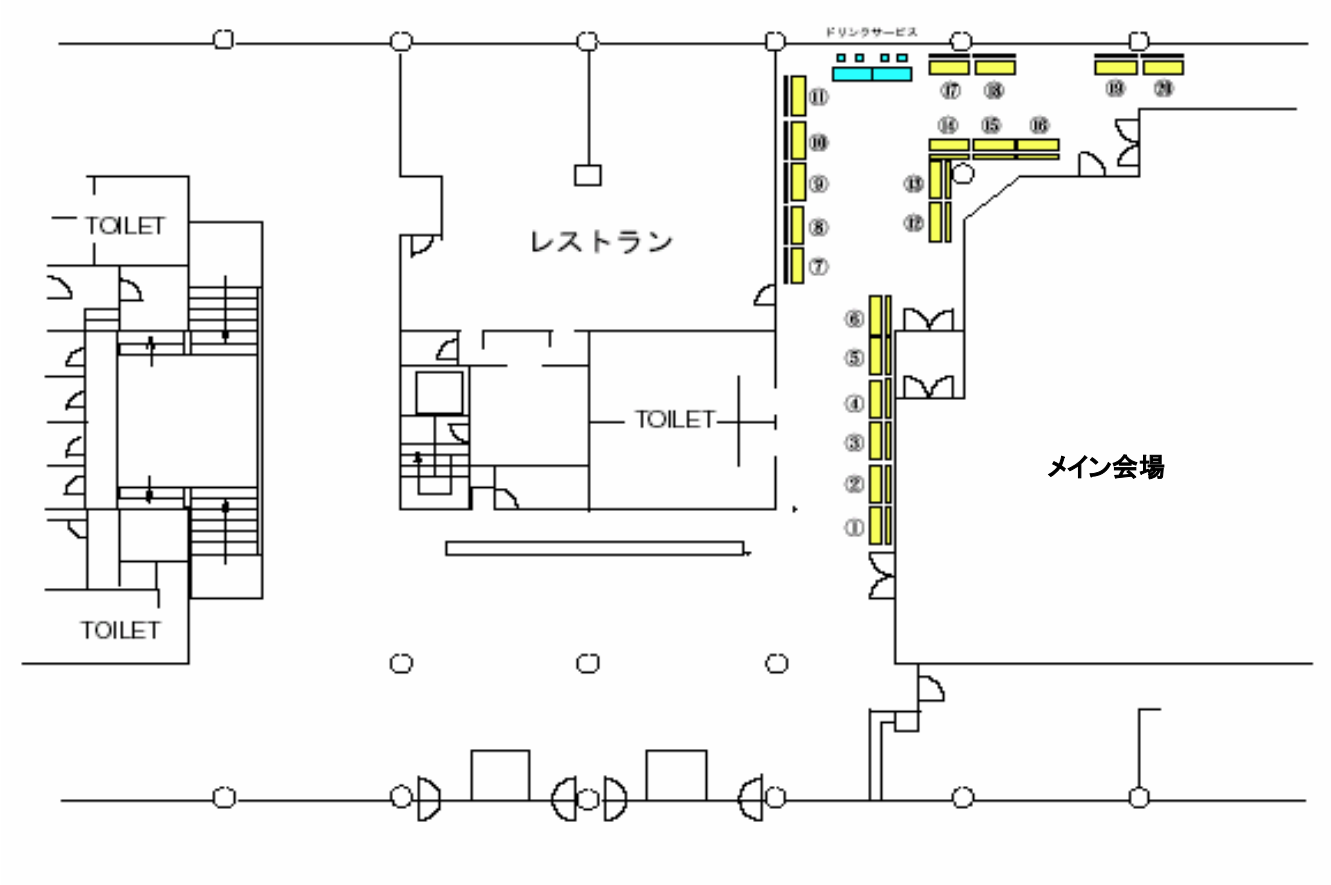

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