Laser Processing for CFRP and Composite Materials 2013

LPCC 2013

Tuesday, April 23

15:45-16:00 Opening Room 414+415
Opening Remarks
15:45 S. Katayama, Steering & Program Committee Chair of LPCC2013, Osaka Univ., Japan

16:00-18:00 LPCC1 : Room 414+415
Chair: Hiroyuki Niino, Steering & Program Committee Co-Chair of LPCC2013, AIST, Japan

LPCC1-1 (Invited) Influence of process strategy and composite reinforcements on weld seam characteristics during laser welding of CF-PPS and CF-PA66
16:00 P. Jaeschke, U. State, and D. Kracht
Laser Zentrum Hannover e.V., Germany

LPCC1-2 Laser direct joining of CFRP to dissimilar materials
16:45 Kwang-Woon Jung, Y. Kawahito, and S. Katayama
Osaka Univ., Japan

LPCC1-3 In-situ inspection of thermoplastic CFRP welded zones using eddy current thermo-sensing
17:00 K. Mizukami, Y. Mizutani, A. Todoroki, and Y. Suzuki
Tokyo Institute of Technology, Japan

LPCC1-4 (Invited) Investigations on laser remote cutting of tailored fiber reinforced structures
17:15 A. Klotzbach, A. Fürst, M. Kempe, J. Hauptmann, and E. Beyer
1)Fraunhofer IWS Dresden, Germany
2)Technische Universität Dresden, Germany

Wednesday, April 24

10:00-12:00 LPCC2 : Room 414+415
Chair: Masayuki Fujita, Steering & Program Committee Co-Chair of LPCC2013 Institute for Laser Technology, Japan

LPCC2-1 (Invited) Basic Study on Welded Joints and Mechanically Fastened Joints of Carbon Fiber Reinforced Thermoplastic
10:00 K. Uzawa
Tokyo Univ., Japan

LPCC2-2 (Invited) Characteristic analysis of CFRP cutting with nanosecond pulsed laser
10:30 W. Inami
Shizuoka Univ., Japan

LPCC2-3 Effect of tension under curing process on mechanical properties of MWNT spun yarn reinforced epoxy
11:00 K. Oshima, Y. Shimamura, K. Tohgo, T. Fujii, and Y. Inoue, Shizuoka Univ., Japan

LPCC2-4 Evaluation of interfacial fracture toughness for interface of CFRP/Adhesives treated by in-mold surface preparation under mode II loading
11:15 Y. Yakimoto, R. Matsazaki, and A. Todoroki

1)Tokyo Univ. of Science, Japan, 2)Tokyo Institute of Technology, Japan

LPCC2-5 (Invited) Study on laser application to the pre-treatment of CFRP surface for painting
11:30 H. Hira
Daido Univ., Japan

----- Lunch Break (12:00-13:30) -----

13:30-15:00 LPCC3 : Room 414+415
Chair: Hirohito Hira, Daido Univ., Japan

LPCC3-1 (Invited) Experimental investigation of the heat accumulation effect when laser processing CFRP with a picosecond laser system
13:30 C. Freitag, V. Kononenko, V. Onuseit, R. Weber, and T. Graf
1)GSAfME Graduate School of Excellence advanced Manufacturing Engineering, Germany, 2)Institut für Strahlwerkzeuge IFSW, Germany, 3)Natural Sciences Center, A.M. Prokhorov General Physics Institute GPI, Germany

LPCC3-2 Micromachining of CFRP with ultra-short laser pulses
14:15 M. Fujita, T. Somekawa, and N. Miyakawa
1)Institute for Laser Technology, Japan, 2)Institute of Laser Engineering, Japan

LPCC3-3 Cutting of CFRP plate with nanosecond laser in air and vacuum
1)Joining and Welding Research Institute, Osaka Univ., Japan, 2)Graduate School of Engineering, Osaka Univ., Japan, 3)Department of Electric and Electronic Engineering, Kinki Univ., Japan

LPCC3-4 Improving efficiency of microwave heating by loading CNT in polymer resin
14:45 S. Hatori, R. Matsuaki, and A. Todoroki
1)Tokyo Univ. of Science, Japan, 2)Tokyo Institute of Technology, Japan

----- Coffee Break (15:00-15:30) -----

15:30-16:30 LPCC4 : Room 414+415
Chair: Yoshihisa Harada, AIST, Japan

LPCC4-1 Laser-ionization Time-of-Flight mass spectrometric studies on laser ablation of carbon fiber reinforced plastics
15:30 A. Narazaki, T. Sato, Y. Kawaguchi, R. Kurosaki, and H. Niino
1)National Institute of Advanced Industrial Science and Technology (AIST), Japan, 2)Advanced Laser and Power Technology Research Association (ALPROT), Japan

LPCC4-2 Laser ablation plume from graphite and CFRP under irradiation of nanosecond UV laser pulses in the air
15:45 Y. Kawaguchi, T. Sato, A. Narazaki, R. Kurosaki, and H. Niino
1)National Institute of Advanced Industrial Science and Technology (AIST), Japan, 2)Advanced Laser and Process Technology Research Association (ALPROT), Japan

LPCC4-3 Laser-induced plasma in noble gases enhances temporal and energetic profiles of transversely excited atmospheric CO2 laser pulses
16:00 T. Gasmi Cherifi
Thursday, April 25

**LPCC5-1 (Invited) Single mode fiber laser of its quasi CW operation for cutting of carbon fiber reinforced plastics (CFRP)**

**10:00**
A. Fujisaki\(^{(1)}\), T. Miyato\(^{(1)}\), T. Kayahara\(^{(1)}\), H. Niino\(^{(1)}\)
\(^{(1)}\)Furukawa Electric, Japan, \(^{(2)}\)National institute of Advanced industrial Science and Technology (AIST), Japan, \(^{(3)}\)Advanced Laser and Process Technology Research Association (ALPROT), Japan

**LPCC5-2 Development of high-speed, sweep type remote processing head**

**10:30**
K. Wakahayashi\(^{(1,2)}\), T. Nagashima\(^{(1,2)}\), Y. Harada\(^{(1,3)}\), and H. Niino\(^{(1,3)}\)
\(^{(1)}\)Advanced Laser and Process Technology Research Association (ALPROT), Japan, \(^{(2)}\)Miyachi Corporation, Japan, \(^{(3)}\)The National Institute of Advanced Industrial Science and Technology (AIST), Japan

**LPCC5-3 Development of laser processing head for CFRP cutting**

**10:45**
K. Furukawa\(^{(2,3)}\), M. Matsushita\(^{(2,3)}\), Y. Harada\(^{(1,3)}\), T. Nagashima\(^{(4)}\) and H. Niino\(^{(1,3)}\)
\(^{(1)}\)Advanced Laser and Process Technology Research Association (ALPROT), Japan, \(^{(2)}\)Shin Nippon Koki Co. Ltd., Japan, \(^{(3)}\)The National Institute of Advanced Industrial Science and Technology (AIST), Japan, \(^{(4)}\)Miyachi Corporation, Japan

**LPCC5-4 Laser machining of PAN/PITCH-based carbon fiber reinforced composite materials**

**11:00**
M. Nishino\(^{(2)}\), Y. Harada\(^{(1,3)}\), T. Nagashima\(^{(4,5)}\), M. Matsushita\(^{(1,5)}\) and H. Niino\(^{(1,3)}\)
\(^{(1)}\)Advanced Laser and Process Technology Research Association (ALPROT), Japan, \(^{(2)}\)Mitsubishi Chemical Corporation, Japan, \(^{(3)}\)National Institute of Advanced Industrial Science and Technology (AIST), Japan, \(^{(4)}\)Miyachi Corporation, Japan, \(^{(5)}\)Shin Nippon Koki Co. Ltd., Japan

**LPCC5-5 Evaluation of defect in CFRP using infrared thermography and its heat conduction simulation**

**11:15**
M. Muramatsu\(^{(1,2)}\), Y. Harada\(^{(1,2)}\), T. Suzuki\(^{(1,2)}\), Hiroyuki Niino\(^{(1,2)}\)
\(^{(1)}\)Advanced Laser and Process Technology Research Association (ALPROT), Japan, \(^{(2)}\)National Institute of Advanced Industrial Science and Technology (AIST), Japan

--- Lunch Break (11:30-12:30) ---

12:30-16:45  Room 414+415

“Workshop for New Frontier of CFRP in Industrial Applications (presentation of five topics in Japanese)” will be held in Room 414+415. All the participants in LPCC 2013 can attend the Workshop free. For more information, please refer to http://opicon.jp/lpcc.