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. Stute, 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[1)], A. Fürst[1,2)], M. Kempe[1)], J. Hauptmann[1)], and E. Beyer[1,2)]*
[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. Yukimoto[1)], R. Matsuzaki[1)], and A. Todoroki[2)]*
[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[1,2)], T. Kononenko[3)], V. Onuseit[2)], R. Weber[2)], and T. Graf[2)]*
[1)]GSaME 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[1,2)], T. Somekawa[1)], and N. Miyanaga[2)]*
[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**

14:30 *M. Tsukamoto[1)], K. Nakai[2)], T. Nariyama[3)], K. Takahashi[1)], S. Masuno[1)], H. Nakano[3)], and N. Abe[1)]*
[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[1)], R. Matsuzki[1)], and A. Todoroki[2)]*
[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[1,2)], T. Sat[o1,2)], Y. Kawaguchi[1,2)], R. Kurosaki[1)], and H. Niino[1,2)]*
[1)]National Institute of Advanced Industrial Science and Technology (AIST), Japan, [2)]Advanced Laser and Process 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[1,2)], T. Sato[1,2)], A. Narazaki[1,2)], R. Kurosaki[1)], and H. Niino[1,2)]*
[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 CO_2 laser pulses**

16:00 *T. Gasmi Cherifi*

Saint Louis University, Spain

Thursday, April 25

10:00-11:30 LPCC5: Room 414+415

Chair: Masahiro Tsukamoto, *Osaka Univ., Japan*

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)3)], T. Miyato[1)3)], T. Kayahara[1)3)], H. Niino[2)3)]*

[1)]Furukawa Electric, Japan, [2)]National institute of Advanced industrial Science and Technology (AIST),Jjapan, [3)]Advanced Laser and Process Technology Research Association (ALPROT), Japan

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

10:30 *K. Wakabayashi[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[1,2)], M. Matsushita[1,2)], Y. Harada[1,3)], T. Nagashima[1,4)] 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[1,2)], Y. Harada[1,3)], T. Nagashima[1,4)], 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 (presentations in Japanese)"

On the 25th afternoon, *"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.