

Room A (101)

Session Title 25A2 / [T01] Optical Frequency Combs
Date & Time Tuesday, 25 August, 13:45 ~ 15:15
Session Chair Jungwon Kim (KAIST, Korea)

[25A2-1] 13:45~14:15 Invited Talk

GHz Level Fiber Laser and Frequency Comb

Zhigang Zhang, Aimin Wang, Chen Li, and Yuxuan Ma
Peking University, China

The advanced laser technology has led to gigahertz level repetition rate femtosecond fiber laser possible. This laser offers advantages of high average power, chirp-free output pulses and helps the frequency comb made compact and simplified.

[25A2-2] 14:15~14:30

Er Comb Fiber Laser with F_{ceo} Noise below 0.2 rad

N. Kuse¹, J. Jiang¹, C.-G. Lee², Y. Yun¹, T. R. Schibli^{1,2}, and M. E. Fermann¹
¹IMRA America Inc., USA, ²University of Colorado, USA

We demonstrate an all polarization-maintaining Er fiber frequency comb with a record low phase noise for the locked carrier envelope offset frequency of 0.18 rad.

[25A2-3] 14:30~14:45

All-Fiber Soliton Er-Laser Mode-Locked by a Planar Lightwave Circuit (PLC)-Based CNT Saturable Absorber

Yeon Joon Cheong¹, Dohyun Kim¹, Chur Kim¹, Sun Young Chof², Hwanseong Jeong², Sang Jun Cha³, Jeong-Woo Lee³, Dong-Il Yeom², Fabian Rotermund⁴, and Jungwon Kim¹
¹KAIST, Korea, ²Ajou University, Korea, ³Fiber Pro Inc., Korea, ⁴Core Cross Inc., Korea

We show an all-planar, fiber-connected CNT saturable absorber manufactured by the planar lightwave circuit (PLC) process. The fabricated saturable absorber was successfully employed in an all-fiber soliton mode-locked Er-laser.

[25A2-4] 14:45~15:00

All-Optical Control of Repetition Rate in Mode-Locked Fiber Lasers

Kangwen Yang, Qiang Hao, and Heping Zeng
University of Shanghai for Science and Technology, China

We obtained high precision repetition rate stabilization of an all-fiber laser by modulating the pump power of an additional doping fiber. The standard deviation of the locked repetition rate was 2 mHz.

[25A2-5] 15:00~15:15

Yb-Doped Fiber Comb Based on a Tapered Single-Mode Fiber

Yang Xie¹, Hainian Han², Long Zhang², Lei Hou², Zijiao Yu², Zheng Zhu², Lihui Pang², Wenjun Liu², and Zhiyi Wei²

¹Xidian University, China, ²Chinese Academy of Sciences, China

We present an Yb-doped fiber frequency comb based on a tapered single mode fiber by locking the repetition frequency and the carrier-envelop-offset frequency simultaneously to the microwave frequency reference outside.

Room B (102)

Session Title 25B2 / [T01] Material Processing & Applications
Date & Time Tuesday, 25 August, 13:45 ~ 15:00
Session Chair Richard Mildren (Macquarie University, Australia)

[25B2-1] 13:45~14:15 Invited Talk

Ultrafast Laser Materials Processing for Manufacturing Innovation

Jiyeon Choi, Mirae Lim, Yong Hyeon Kim, and Sangmin Chae
KIMM, Korea

Ultrafast laser based materials processing has shown remarkable success in various area of industrial applications. A few examples of innovative applications in displays, OSCs, and other consumer electronics fabrication are demonstrated.

[25B2-2] 14:15~14:30

Yb-Doped LMA Fiber Fabrication Using Chelate Precursor Doping Technique

Zhen Wang, Cong Gao, Li Ni, Xiaolong Wang, Kun Peng, Yuying Wang, Huan Zhan, Jianjun Wang, Feng Jing, and Aoxiang Lin
Chinese Academy of Sciences, China

We report on the fabrication of a kW-level Yb-doped fiber by using chelate precursor doping technique. Lasing performance was tested up to 1 kW laser output with slope efficiency of 81.8%.

[25B2-3] 14:30~14:45

Characteristics of the Coherent EUV Light Source for EUV Metrology

Yong Soo Kim^{1,2}, Younghee Kim¹, June Park¹, Hamin Sung³, Jomsool Kim³, Ju Han Lee², and Young Min Jhon¹

¹KIST, Korea, ²University of Seoul, Korea, ³Laser Spectronix, Korea

Coherent EUV light at 13.5 nm was generated by high-harmonic generation using a 35-fs pulsed laser at 796 nm in Ne gas, which showed stable operation within 5% deviation over an hour.

[25B2-4] 14:45~15:00

Observation of Rogue Waves in a 980 nm-Laser Diode Subject to Filtered Optical Feedback

Min Won Lee¹, Fadwa Baladi^{1,2}, Jean-René Burie², Mauro A. Bettiati², Azzedine Boudrioua¹, and Alexis P. A. Fischer¹

¹Université Paris 13, France, ²3S Photonics Technologies, France

Rogue waves are observed in a 980 nm laser diode subject to filtered optical feedback via an FBG. A rogue wave map is established experimentally as a function of the optical feedback ratio and the laser current.