Room A (101)

Session Title 27A1 / [T01] Tm Fiber Lasers
Date & Time Thursday, 27 August, 11:00 ~ 12:30
Session Chair Ju Han Lee (University of Seoul, Korea)

[27A1-1] 11:00~11:15

Resonantly Pumped Amplification in a Thulium-Doped Photonic Crystal Fiber

Alex Sincore[1], Lawrence Shah[1], Mateusz Wysmolek[2], Robert Ryan[1], Ali Abdulfattah[1], and Martin Richardson[1]

[1]University of Central Florida, USA, [2]Laser Zentrum Hannover, Germany

Efficiencies <50% are typical in large mode area, thulium-doped photonic crystal fibers when pumped at 790 nm. These large thermal loads limit power scaling. In this work, we investigate resonant pumping and demonstrate slope efficiencies >64%.

[27A1-2] 11:15~11:30

Dissipative Soliton Generation at 2μm from a Mode-Locked Fiber Laser Using CNT

Yu Wang[1], Alam Shaif-ul[2], Elena D. Obraztsova[3], Anatolii S. Pozharov[3], and Shinji Yamashita[1]

[1]The University of Tokyo, Japan, [2]University of Southampton, UK, [3]A.M. Prokhorov General Physics Institute, Russia

We report for the first time, generation of dissipative soliton from a ring-cavity thulium fiber laser mode-locked with the use of a carbon nanotubes saturable absorber and a length of DCF producing 416 pJ pulse energy.

[27A1-3] 11:30~11:45

High-Power Narrow-Linewidth Thulium-Doped All-Fiber MOPA

Jiang Liu, Hongxing Shi, Chen Liu, and Pu Wang

Beijing University of Technology, China

We demonstrated a high-power narrow-linewidth thulium-doped all-fiber laser based on master-oscillator power amplifier. The amplifier yielded 342 W of narrow-linewidth laser output at central wavelength of 2000.3 nm with 3 dB spectral bandwidth of 90pm.

[27A1-4] 11:45~12:00

Linearly Polarized Thulium Doped All-Fiber Laser

Jiachen Wang[1,2], Sang Bae Lee[1], and Kwanil Lee[1]

[1]KIST, Korea, [2]University of Science and Technology, Korea

We report an all-fiber, linearly polarized Thulium doped fiber laser operating at 1950 nm. In the experiment, as high as 14.2 Watts power is generated from the laser with slope efficiency of 48.4%.

[27A1-5] 12:00~12:15

Long-Cavity Nanosecond Thulium Fiber Laser: A Compact Source of Energetic Mid-IR Pulses

Yao Li[1], Xing Bi[1], Yafei Meng[1], Xiaokang Cao[1], Yongbing Xu[1], Edmund Kelleher[2], and Fengqiu Wang[1]

[1]Nanjing University, China, [2]Imperial College London, UK

We demonstrate nanosecond operation in an elongated cavity thulium fiber laser: a simple scheme for pulse energy scaling and repetition rate reduction. 7.5 nJ pulses with a repetition rate of 330 kHz are achieved.

[27A1-6] 12:15~12:30

Optical Properties of Er^{3+}-doped K-Ca-Al Fluorophosphate Glasses

K. Linganna[1], K. Suresh[2], S. Ju[1], W.-T. Han[1], C. K. Jayasankar[2], and V. Venkatramu[3]

[1]GIST, Korea, [2]Sri Venkateswara University, India, [3]Yogi Vemana University, India

Optical absorption and emission properties of the Er^{3+}-doped K-Ca-Al fluorophosphate glasses were investigated and compared with other reported glasses for optical amplification application at 1.534 μm.

Room B (102)

Session Title 27B1 / [T03] Terahertz Technologies and Applications I
Date & Time Thursday, 27 August, 11:00 ~ 12:30
Session Chair Il-Min Lee (ETRI, Korea)

[27B1-1] 11:00~11:30 Invited Talk

Continuous Wave Terahertz Signal Generator Based on Difference Frequency Generation in Gallium Phosphide Developed for Industrial Applications

Tetsuo Sasaki[1], Tadao Tanabe[2], Tomoaki Sakamoto[3], and Jun-ichi Nishizawa[2]

[1]Shizuoka University, Japan, [2]Tohoku University, Japan, [3]National Institute of Health Sciences, Japan

We have developed a CW THz signal generator on the principle of DFG in a GaP crystal and constructed THz spectrometers. Simple and easy operation/maintenance of the device would be suitable for industrial applications.

[27B1-2] 11:30~11:45

Enhanced Terahertz Emission from SI-GaAs with a Sub-wavelength 1D Metal Array

Maria Angela Faustino, Lorenzo Jr. Lopez, Jessica Afalla, Joselito Muldera, Mark Jayson Felix, Arnel Salvador, Armando Somintac, and Elmer Estacio

University of the Philippines, Philippines

Terahertz emission enhancement in SI-GaAs, having a deposited periodic 1D metal array, is reported. The one order enhancement is currently attributed to the localization of the terahertz electromagnetic field at the GaAs apertures.

[27B1-3] 11:45~12:00

Stoichiometry Controlled Liquid Phase Growth of GaSe Crystals for the Efficient THz Generation

Yohei Sato, Kohei Suzuki, Kensaku Maeda, and Yutaka Oyama

Tohoku University, Japan

THz generation efficiency from GaSe crystals were deteriorated by thermal equilibrium point defects and deviation from stoichiometry. Low temperature solution grown GaSe crystals were evaluated in comparison with commercially available Bridgman-grownc rystals.

[27B1-4] 12:00~12:15

Progress on Terahertz in-line Digital Holography Based on 3THz QCL

Qinghua Deng, Weihua Li, Xuemin Wang, Changle Shen, and Tao Jiang

China Academy of Engineering Physics, China

By shaping the output from 3THz QCL, Gaussian-distributed THz source with very small divergence was obtained. With this good-quality QCL source, a Terahertz in-line digital holography set was built up. Resolution of this Terahertz in-line digital holography set is as small as 200μm, which is the smallest resolution reported up to now.

[27B1-5] 12:15~12:30

Real-Time Absolute Frequency Measurement of CW THz Radiation Based on a Free-Running THz Comb

Takashi Ogura[1], Kenta Hayashi[1], Kosuke Nagai[1], Yoshiaki Nakajima[2,3], Hajime Inaba[2,4], Kaoru Minoshima[2,3], and Takeshi Yasui[1,2]

[1]Tokushima University, Japan, [2]JST, Japan, [3]The University of Electro-Communications, Japan, [4]National Institute of Advanced Industrial Science and Technology, Japan

Absolute frequency of continuous-wave terahertz radiation was determined at an acuracy of 10^{-11} in real time by modulating a frequency spacing of photocarrier terahertz comb induced by a free-running femtosecond laser.