

Room C (103)

Session Title 25C1 / [T02] Femtosecond Laser
Date & Time Tuesday, 25 August, 11:00 ~ 12:00
Session Chair Fabien Quere (CEA, France)

[25C1-1] 11:00~11:30 Invited Talk

Frequency Domain Optical Parametric Amplification

B. E. Schmidt^{1,2}, N. Thiré³, P. Lassonde¹, L. Arissian³, G. Ernotte¹, F. Poitras¹, T. Ozaki¹, A. Laramée¹, M. Boivin¹, H. Ibrahim¹, and F. Légaré¹

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General restrictions arising from gain-narrowing and phase-matching are circumvented by employing parametric amplification in the frequency rather than the time domain. Frequency-domain OPA has been used for amplifying few cycle pulses and for high gain amplification.

[25C1-2] 11:30~11:45

Broadband 800nm Pulse Generation with an Optical Parametric Amplifier based on BiB₃O₆

Yanyan Li, Yuxin Leng, Wenkai Li, Xiao Zou, Yi Xu, and Yun Chen
Chinese Academy of Sciences, China

We demonstrated the generation of broadband 800nm laser pulse with a BiB₃O₆ based OPA followed by a SHG process. The achieved pulses are with spectrum of 53.3nm (FWHM) and pulse width of 18.6 fs.

[25C1-3] 11:45~12:00

Ultra-Broadband Femtosecond Optical Gating System Using Transient Kerr Lens Effect

Wenhua Li¹, Zhenhua Wang¹, Xinzhen Zhang^{1,2}, Yu-E Wu¹, Qiang Wu¹, and Jingjun Xu¹

¹Nankai University, China, ²Collaborative Innovation Center of Chemical Science and Engineering, China

A convenient ultra-broadband femtosecond optical gating system utilizing transient Kerr lens effect is demonstrated with its application on measuring the time-frequency property of some broadband light sources.

Room D (106)

Session Title 25D1 / [T04] High Power, High Energy Lasers
Date & Time Tuesday, 25 August, 11:00 ~ 12:30
Session Chair Changhwan Lim (KAERI, Korea)

[25D1-1] 11:00~11:30 Invited Talk

Nonlinearity Management: From Fiber Oscillators to Amplifiers

F. Ömer Ilday¹, Ç. Şeneş², R. Hamid², T. Teamir¹, I. Pavlov¹, U. Teğün¹, E. Ergeçen¹, P. Elahi¹, and R. Ilegorov¹

¹Bilkent University, Turkey, ²TÜBİTAK National Metrology Institute, Turkey

While the standard approach to performance scaling in fiber lasers seeks to reduce nonlinear effects through chirping or mode scaling, I will review recent progress in a complementary approach, whereby the governing dynamics are meticulously exploited towards achieving superior performance.

[25D1-2] 11:30~12:00 Invited Talk

Coherent Combination of Ultrafast Laser: A Path towards High Repetition Rate Joule-class fs Pulses

Jens Limpert

Friedrich-Schiller-Universität Jena, Germany

In recent years intense laser pulses have found applications in various industrial and scientific areas. Significant progress has been made in scaling the energy of the pulses as well as the average power. However, different amplification schemes have been pushed to their specific limits, caused by detrimental nonlinear effects, by damage or by the occurrence of thermo-optical effects. New concepts have to be considered to address these issues and to enable new application fields. In that context, I will review the basics and achievements of coherent combination of amplified femtosecond pulses, a concept which has already out-performed single aperture femtosecond laser systems and which allows for a scaling to unprecedented performance levels, i.e. the combination of highest peak power (Petawatt) and highest average power (Megawatt).

[25D1-3] 12:00~12:15

High Energy Hybrid Fibre Regenerative Amplifier for Nanosecond Laser Pulse

Qiao Zhi, Wang Xiaochao, Fan Wei, and Lin Zunqi

Chinese Academy of Sciences, China

A hybrid fibre-bulk regenerative amplifier with maximum output energy of 600uJ at 1Hz for narrow-linewidth nanoseconds laser is demonstrated. Nearly diffraction limited beam is obtained. The total gain is more than 63dB.

[25D1-4] 12:15~12:30

Kerr Lens Mode-locked Yb:Lu₂O₃ Ceramic Oscillator Pumped by a Multimode Laser Diode

Tomohiro Ishikawa^{1,2}, A. Amani Eilanlou¹, Yasuo Nabekawa¹, Yoshihiko Fujihira³, Tomohiro Imahoko^{1,4}, Tetsumi Sumiyoshi^{1,4}, Fumihiko Kannari², Makoto Kuwata-Gonokami⁴, and Katsumi Midorikawa^{1,4}

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We report a Kerr lens mode-locked Yb:Lu₂O₃ ceramic oscillator with a pulse energy of 23.5 nJ, which is the highest value in bulk Yb:Lu₂O₃ ceramic oscillators, to the best of our knowledge.