

Room C (103)

Session Title 27C1 / [T02] Strong Field Physics
Date & Time Thursday, 27 August, 11:00 ~ 12:15
Session Chair Ryuji Itakura (Japan Atomic Energy Agency, Japan)

[27C1-1] 11:00~11:30 Invited Talk

High Harmonics and Attosecond Pulses – Seeing Inside Molecules

David M Villeneuve

National Research Council and University of Ottawa, Canada

High harmonic spectroscopy is a window into the valence electron structure of molecules. The femtosecond timescale allows us to see changes in molecular structure and the attosecond timescale allows us to see re-arrangement of electrons.

[27C1-2] 11:30~12:00 Invited Talk

Laser-assisted Electron Scattering and Diffraction in Femtosecond Intense Laser Fields

Yuya Morimoto, Reika Kanya, and Kaoru Yamanouchi
the University of Tokyo, Japan

We have developed a method called laser-assisted electron diffraction through which geometrical structures of molecules can be determined with high precision (~ 0.01 Å) and with high temporal resolution (< 10 fs), and applied it to CCl₄.

[27C1-3] 12:00~12:15

Strong Field Nanoplasmonic Photoemission in the Mid-IR at < 1 GW/cm² Intensity

Péter Rácz¹, Stephan Teichmann², Marcelo Ciappina³, José Antonio Pérez Hernández⁴, Alexandre Thaï⁵, Júlia Fekete¹, Abdulkhakem Elezzabi⁶, László Veisz², Jens Biegert⁷, and Péter Dombi¹

¹Wigner Research Centre for Physics, Hungary, ²ICFO–Institut de Ciències Fotòniques, Spain, ³Max-Planck-Institut für Quantenoptik, Germany, ⁴Centro de Láseres Pulsados, Spain, ⁵University of Alberta, Canada

Strong-field ultrafast photoemission was studied by propagating surface plasmons generated on gold metal layer in Kretschmann configuration at 3.1 microns wavelength. Tunneling photoemission and electron acceleration was demonstrated at an unprecedentedly low laser intensity (1-5 GW/cm²).

Room D (106)

Session Title 27D1 / [T04] High Power, High Energy Lasers I
Date & Time Thursday, 27 August, 11:00 ~ 12:30
Session Chair Jae Hee Sung (IBS/GIST, Korea)

[27D1-1] 11:00~11:30 Invited Talk

Progress on Mid-infrared Intense Laser Aiming at 100 TW Peak Power

Guo Qiang Xie, Fu Yong Wang, Peng Yuan, and Lie Jia Qian
Shanghai Jiaotong University, China

We have accomplished designing of a 100-TW level midinfrared laser based on two-stage optical parametric chirped pulse amplification (OPCPA) scheme. At present, we have experimentally demonstrated 120-GW midinfrared pulse generation with single-stage OPCPA.

[27D1-2] 11:30~11:45

Design and Progress of SG-II Multi Petawatt Laser Facility

Jianqiang Zhu, Xinglong Xie, Qingwei Yang, Jun Kang, Haidong Zhu, Ailin Guo, Ping Zhu, Qi Gao, Zhigang Liu, Quantang Fan, Daizhong Liu, Xiaoping Ouyang, Hui Wei, and Xiaochao Wang

Shanghai Institute of Optics and Fine Mechanics, China

Shenguang-II multi petawatt laser is designed to deliver a 5PW laser pulse. It is expected to be finished in the year of 2015. Details of the design and the progresses will be presented in this paper.

[27D1-3] 11:45~12:00

Final EDP Ti: Sapphire Amplifiers for ELI –Project

Vladimir Chvykov¹, Mikhail Kalashnikov^{1,2}, and Karoly Osvay¹

¹ELI-ALPS, Hungary, ²Max Born Institute, Germany

We studied the concept of EDP amplification for the 10-100 PW level of the three ELI-pillars laser systems. The design of EDP – duty amplifiers required to achieve these parameters was done and will be reported.

[27D1-4] 12:00~12:15

1.02 Petawatt Hybrid-scheme Laser System Based on LBO-OPCPA Near 800 nm

Lianghong Yu¹, Xiaoyan Liang¹, Zhanggui Hu², Yuxin Leng¹, Ruxin Li¹, and Zhizhan Xu¹

¹Shanghai Institute of Optics and Fine Mechanics, China, ²Technical Institute of Physics and Chemistry, China

We report a hybrid laser system with peak power of 1.02 PW based on LBO-OPCPA near 800 nm. The amplified energy of 45.3 J centered at 800 nm was generated with a conversion efficiency of 26.3%. After compression, the pulse duration was 32 fs.

[27D1-5] 12:15~12:30

Optical Parametric Chirped Pulse Amplifier for a 4 PW Laser Front-end

Hwang Woon Lee¹, Je Yoon Yoo¹, Jae Hee Sung^{1,2}, Seong Ku Lee^{1,2}, Tae Moon Jeong^{1,2}, Jeong Moon Yang¹, Yeon Joo Son¹, and Chang Hee Nam¹

¹IBS, Korea, ²GIST, Korea

A two-stage non-collinear optical parametric chirped pulse amplifier (OPCPA), using type-I BBO nonlinear crystal, has been developed as a pre-amplifier of the 4 PW laser at CoReLS.