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Jingru Liu
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Introduction

The second International Symposium on Laser Interaction with Matter (LIMIS 2012) was successfully held in Xi'an, China, in September, 2012. Many prestigious experts, from eight different countries and regions, attended this symposium to present their latest researches and innovations. Nearly 150 presentations were selected from 216 abstracts presented in the symposium and about 90 papers were accepted for publishing. They are distributed over 6 sessions:

• Laser irradiation effect and mechanism session focuses on the theoretical and experimental study on laser interaction with various materials including metal, silicon, composites, germanium, multi-layer films and so on. Laser propulsion is also one part of this topic, attracting special interests.
• Laser plasma physics session collects papers on high energy density physics and the generation, properties and applications of laser plasmas. Laser-induced breakdown in liquid water, breakdown spectroscopy in air and Electron acceleration in laser wake field are also discussed.
• Laser spectrum technology and applications mainly covers many different laser-based diagnostic technologies, such as CARS, TDLAS, LIF, PLIF, HTV, LIBS and so on. These technologies, widely used for the measurement of velocity, temperature, and species of combustion, are getting more momentum these days. High power lasers session presents many new achievements in gas lasers as excimer lasers and CO_2 lasers, as well as conventional Nd-doped solid state lasers. Many new lasers including photonic crystal fiber lasers, diode-pumped Alkali-Vapor lasers and ceramic lasers are most eye-catching. Related high power laser technologies are also covered, as of forth harmonic generation, Q-switching and high power laser beam diagnostics.
• In the nonlinear optics session, new nonlinear materials are presented and their unique properties are studied: Besides, nonlinear technologies as DFWM, OPO and OPA are of enormous academic value.
• Laser processing is developing very fast recently. As one of the most fascinating sessions, it highlights the industrial micromachining on various materials.

All these papers will benefit not only the participants of this international symposium but also other researchers engaged in related fields.

At last, I would like to express my gratitude to all the reviewers of this proceeding and the editors of SPIE for their pains taking effort and generous support.

Jingru Liu