Electro-Optomechatronics design of a high peak power ultra-short pulse UV laser system

陳振文,陳逸咸,吳仕銳,段景斌,邱利安,康雅萍
Communication Engineering
Engineering
jwchen@chu.edu.tw

Abstract

The laser physics and the optics for optomechatronic design of a high peak power ultra-short pulse UV laser system are investigated. We have developed a tera-watts high peak power, sub-hundred femto-second ultra-short pulse 248.6 nm UV laser systems. Our laser system can also emit medium output power in 497.2 nm yellow-green wavelength. By the optimization of the optomechatronic system design techniques, our laser system can generate single high peak power ultra-short UV laser pulse, and controllable low to high repetition rates high peak power ultra-short UV laser pulses. The complete laser system and its sub-systems are specified in detail, the physics are investigated thoroughly, and the techniques of optomechatronic control are designed and tested satisfactorily.

Keyword：High peak power, ultra-short pulse, UV laser, Electro-optomechatronics design