

論文題目：

利用摻鏡光纖雷射放大器產生皮秒級 266 奈米輸出之研究

Generation of 266 nm Output from a Picosecond Yb-doped Fiber Amplifier

中英文摘要

中文：

此研究利用一個緊緻光纖雷射放大器產生，以及三硼酸鋰和 β 相偏硼酸鋇晶體產生 266 奈米之紫外雷射輸出。為了提高波長轉換效率，我們改善了光纖放大器所造成的非線性效應，成功地將四倍頻的轉換效率（266 奈米／532 奈米）由 3.8% 提升至 7.4%，而最高可輸出 200 毫瓦之紫外光雷射。

英文：

In this thesis, the Lithium Triborate (LBO) and Beta-Barium Borate (β -BBO) crystals are used for the second and the fourth harmonic generation of a picosecond high-power ytterbium-doped dual stage master-laser-fiber-amplifier at the wavelength of 1064 nm. The stimulated Raman scattering (SRS) and self-phase modulation (SPM) are the most important nonlinearities limiting the performance of whole system. By optimizing the nonlinearities of the fiber, we generate over 200 mW of UV pulse at 266 nm when the power of the fundamental IR pulse was 28 W.

