

## Status of Prototype of SG-III High-Power Solid-State Laser

**Yu Haiwu**<sup>1</sup>, Jing Feng, Wei Xiaofeng, Zheng Wanguo, Zhang Xiaomin, Sui Zhan, Li Mingzhong, Hu Dongxia, He Shaobo, Peng Zhitao, Feng Bin, Zhou Hai, Guo Liangfu, Li Xiaoqun, Su Jingqin, Zhao Runchang, Yang Dong, Zheng Kuixing and Yuan Xiaodong

<sup>a</sup>Research Center of Laser Fusion, China Academy of Engineering Physics,  
Mianyang, Sichuan 621900, China

We are currently developing a large aperture neodymium-glass based high-power solid state laser, Shenguang-III (SG-III), which will be used to provide extreme conditions for high-energy-density physical experiments in China. As a baseline design, SG-III will be composed of 48 beams arranged in 6 bundles with each beam aperture of 40 cm × 40 cm. A prototype of SG-III (TIL-Technical Integration experimental Line) was developed from 2000, and completed in 2007. TIL is composed of 8 beams (four in vertical and two in horizontal), with each square aperture of 30 cm × 30 cm. After frequency tripling, TIL has delivered about 10 kJ in 0.351 μm at 1 ns pulsewidth. As an operational laser facility, TIL has a beam divergence of 70 μrad (focus length of 2.2 m, i.e., 30DL) and pointing accuracy of 30 μm (RMS), and meets the requirements of physical experiments.

---

<sup>1</sup> E-mail: yuhw69@yahoo.com.cn