

中文核心期刊
中国科技核心期刊

ISSN 1003-501X
CN 51-1346/O4
CODEN GUGOEC

光 电 工 程

Opto-Electronic Engineering

2017年 第44卷 第12期

激光微纳加工——
挑战精密工程极限，颠覆光学制造理念



中国科学院光电技术研究所

万方数据



中国光学学会

光电工程

(Guangdian Gongcheng)

月刊 1974 年创刊
第 44 卷 第 12 期 (总第 337 期)
2017 年 12 月

主管单位: 中国科学院
主办单位: 中国科学院光电技术研究所
中国光学学会
主 编: 罗先刚
编辑出版: 《光电工程》编辑部
(四川省成都市双流区 350 信箱, 邮编 610209)
电 话: 028-85100579
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网 址: <http://www.oee.ac.cn>
印 刷: 四川玖艺呈现印刷有限公司
国内发行: 四川省报刊发行局
(邮发代号: 62-296)
国外发行: 中国国际图书贸易集团有限公司
(发行代号: M7114)

Opto-Electronic Engineering

(Monthly, since 1974)
Volume 44, Issue 12 December 2017

Managed by
Chinese Academy of Sciences

Sponsored by
Institute of Optics and Electronics,
Chinese Academy of Sciences
The Chinese Optical Society

Editor-in-Chief Luo Xiangang

Edited and Published by
Editorial Office of *Opto-Electronic
Engineering*, P. O. Box 350, Shuangliu,
Chengdu 610209, P.R.China

Tel +86-28-85100579
E-mail oee@ioe.ac.cn
Website <http://www.oee.ac.cn>

Printed by Sichuan Joy Art Printing Co., Ltd.

Domestic Distributed by
Sichuan Provincial Newspaper &
Periodical Subscription and Distribution
Bureau (Code: 62-296)

Overseas Distributed by
China International Book Trading
Corporation (Code: M7114)

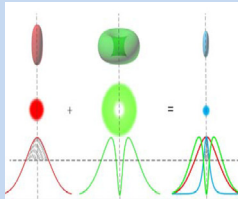
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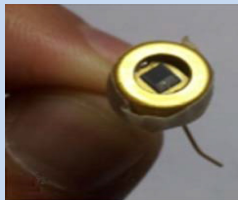
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Focus



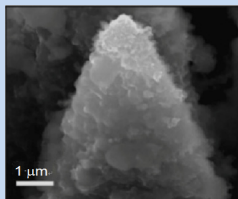
Dual-beam super-resolution direct laser writing nanofabrication technology 1133
Yaoyu Cao, Fei Xie, Pengda Zhang and Xiangping Li

To realize three dimensional micro/nanostructures, dual-beam super-resolution direct laser writing technique has successfully realized resolution beyond optical diffraction limit, and uphold exceptional 3D nanofabrication scheme.



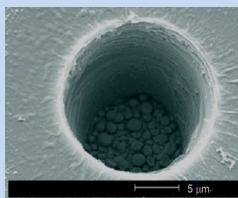
Research and development of femtosecond-laser hyperdoped silicon 1146
Zixi Jia, Song Huang, Xiaorong Jin, Ming Yang, Zhandong Chen, Jianghong Yao, Qiang Wu and Jingjun Xu

The basic theories and several physical models of femtosecond laser-silicon interaction are summarized, and its applications in relevant areas are introduced.



Research progress in superhydrophobic surfaces fabricated by laser 1160
Huan Yang, Yu Cao, Fengping Li and Wei Xue

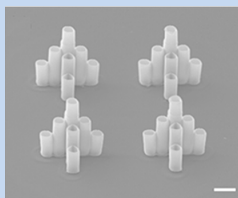
Several typical approaches, theories and relevant applications of laser fabricated superhydrophobic surfaces are summarized.



Review of UV laser and its applications in micromachining 1169
Shilin Nie and Yingchun Guan

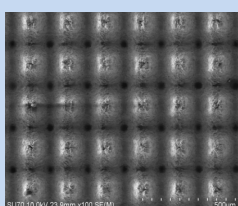
The development and applications of UV laser in micromachining of semiconductor, optical element and polymer are analyzed.

Advances



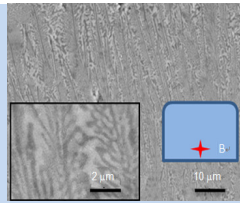
Microtube fabrication based on femtosecond Bessel beam and its flexible driving with external magnetic field 1180
Chen Xin, Liang Yang, Zhijiang Hu, Kai Hu, Dongdong Qian, Yanlei Hu, Jiawen Li and Dong Wu

The propagation and high numerical aperture focusing properties of femtosecond Bessel beams are investigated.



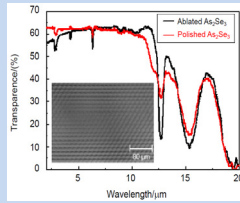
Fabrication and bacterial adhesion of metal dry electrode with surface microstructure arrays 1187
Shaoyu Liu, Wei Zhou, Yaoyao Li, Jiachang Fang, Chenying Zhang, Ronghua Lu and Guifeng Ye

Based on the analysis of the micro morphology of the electrode surface, the influence of laser processing parameters such as scanning spacing, scanning speed and scan times on the adhesion performance of Escherichia coli is further investigated.



Effect of constant temperature substrate on microstructure and hardness of Al_2O_3 -based eutectic ceramics 1194
 Hanchao Liu, Fan Lu, Guangyi Ma and Dongjiang Wu

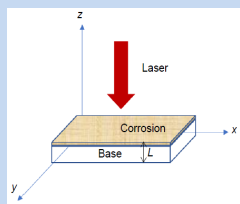
Compared with the microhardness of two kinds of thin-wall samples prepared on the different substrates, it is found that the microhardness of the thin-wall samples prepared on the water-cooled constant temperature substrate is increased by about 10%.



Picosecond laser microfabrication of infrared antireflective functional surface on As_2Se_3 glass 1200

Qiang Yang, Lingfei Ji, Bo Xu, Tianyang Yan, Wenhao Wang and Zhenyuan Lin

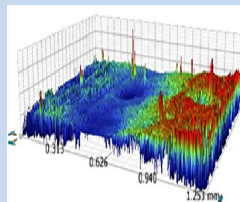
Large-scale periodic dot matrix anti-reflective microstructures were fabricated on the surface by using UV picosecond laser with rapid line scanning to improve the infrared transmittance of As_2Se_3 glass.



Mechanism of laser derusting and surface properties of low carbon steel 1210

Zhiguo Ren, Changzhong Wu, Huaining Chen, Ying Lu, Hongchao Qiao and Taiyou Hu

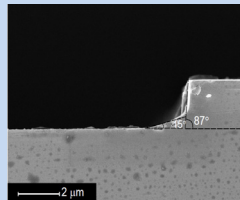
By means of experimental analysis on the surface of the metal base, microstructure, mechanical properties and hardness were studied and compared.



Effect of power on laser cleaning result of stainless steel surface 1217

Guoxing Chen, Haifeng Lu, Ying Zhao, Huiwei Zhang, Shaochong Wei, Hua Ji, Shuhui Wu and Yiling Shi

Laser cleaning technology was used to clean the surface of stainless steel, and the influence of different laser power (300 W, 400 W, 500 W) on cleaning effect was studied.



Study on etch process of GaSb-based VCSEL 1225

Xin Zhang, Yang Li, Xia Wang, Yang Li, Gangli Yue, Zhiwei Wang, Jianlai Xie, Jiabin Zhang and Yongqin Hao

Undercutting effect is eliminated and a vertical side wall is obtained with no lateral etching. Etching rate is 0.62 $\mu\text{m}/\text{min}$. The perfect etch behavior of GaSb provides a good technical support for laser preparation.

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Laser texturing for design of superhydrophobic metal surface 1255

Laser synthesis and colloid processing 1255

Bioinspired hybrid wettability surface with micro/nanopatterns for efficient fog collection 1255