

# Chinese Optics Letters

Volume 15  
Number 6  
June 10, 2017  
col.opticsx.org

## Atmospheric and oceanic optics

- Performance of a PPM hard decision-based ARQ-FSO system in a weak turbulence channel  
*Jianjun Yin, Hongzhan Liu, Rong Huang, Zhengguang Gao, and Zhongchao Wei* 060101

## Atomic and molecular physics

- Optical storage of orbital angular momentum via Rydberg electromagnetically induced transparency  
*Kai Wang, Wei Zhang, Zhiyuan Zhou, Mingxing Dong, Shuai Shi, Shilong Liu, Dongsheng Ding, and Baosen Shi* 060201
- Spin dynamics of high-spin fermions in optical superlattices  
*Shaobing Zhu, Jun Qian, and Yuzhu Wang* 060202

## Diffraction and gratings

- Propagation properties of the chirped Airy vortex beams through left-handed and right-handed material slabs  
*Jianbin Zhang, Zihao Pang, Liyan Feng, Tianfen Zhong, Linyi Wang, and Dongmei Deng* 060501

## Fiber optics and optical communications

- Seven-core photonic liquid crystal fibers for simultaneous mode shaping and temperature sensing  
*Min Liu, Bingyue Zhao, Xu Yang, and Jingyun Hou* 060601
- Pump induced birefringence in dual-polarization fiber grating lasers  
*Linghao Cheng, Yunbo Li, Yizhi Liang, Hao Liang, and Bai-Ou Guan* 060602
- Experimental demonstration of 60 Gb/s optical OFDM transmissions at 1550 nm over 100 m OM1 MMF IMDD system with central launching  
*Jian Chen, Ling Fang, Qianwu Zhang, Junjie Zhang, Yingzong Song, Yingchun Li, and Min Wang* 060603
- Optical phase remodulation for Rayleigh noise mitigation in 10 Gb/s/channel WDM passive optical networks  
*Jing Xu, Yang Qiu, and Ning Deng* 060604
- Study on a v-band signals and pulses generator with a tunable optical carrier to sideband ratio  
*Hongyao Chen, Tigang Ning, Jing Li, Li Pei, Jin Yuan, and Xiaodong Wen* 060605

## Holography

- Gradation representation method using a binary-weighted computer-generated hologram based on pulse-width modulation  
*Masato Fujiwara, Naoki Takada, Hiromitsu Araki, Chun Wei Ooi, Shohei Ikawa, Yuki Maeda, Hiroaki Niwase, Takashi Kakue, Tomoyoshi Shimobaba, and Tomoyoshi Ito* 060901

Contents continued

## Lasers and laser optics

Parasitic lasing in large aperture Ti:sapphire chirped pulse amplifier  
*Zutao Fan, Zebiao Gan, Xiaoyan Liang, Lianghong Yu, Wenqi Li, Zhen Guo, Xiaolong Yuan, He Cao, Pei Huang, Ruxin Li, and Zhizhan Xu* 061401

Simple and high efficient graded-index multi-mode fiber tweezers: simulation and experiment  
*Yaxun Zhang, Tong Wang, Zhihai Liu, Yu Zhang, Xiaoyun Tang, Enming Zhao, Xinghua Yang, Haili Jiang, Jianzhong Zhang, Jun Yang, and Libo Yuan* 061402

## Materials

Real-time observation of liquid crystal molecular directions based on a snapshot polarimeter  
*Jing Ma, Canhua Xu, and Yangguang Yao* 061601

## Nonlinear optics

Resonant and nonresonant second-harmonic generation in a single cadmium sulfide nanowire  
*Xiaoyang Huang, Shuwei Dai, Pengfei Xu, Yongmei Wang, Qing Yang, Yong Zhang, and Min Xiao* 061901

Harmonic generation at air-soil interface by femtosecond laser filament  
*Na Chen, Yaoxiang Liu, Tiejun Wang, Zhongbin Zhu, Haiyi Sun, Xiaona Yan, Yunhua Xia, Jinhua Xia, Juan Du, Jiansheng Liu, and Yuxin Leng* 061902

## Optical design and fabrication

Versatile nanosphere lithography technique combining multiple-exposure nanosphere lens lithography and nanosphere template lithography  
*Yonghui Zhang, Zihui Zhang, Chong Geng, Shu Xu, Tongbo Wei, and Wen'gang Bi* 062201

Design of image-side telecentric freeform imaging systems based on a point-by-point construction-iteration process  
*Tong Yang, Guofan Jin, and Jun Zhu* 062202

## Optical devices

Experimental evidence of photonic crystal waveguides with wide bandwidth in two-dimensional  $\text{Al}_2\text{O}_3$  rods array  
*Yong Wang, Dengguo Zhang, Shixiang Xu, Biaogang Xu, Zheng Dong, and Tan Huang* 062301

## Optics at surfaces

Optical rectification and Pockels effect as a method to detect the properties of Si surfaces  
*Qi Wang, Li Zhang, Xin Wang, Haiyan Quan, Zhanguo Chen, Jihong Zhao, Xiuhuan Liu, Lixin Hou, Yanjun Gao, Gang Jia, and Shaowu Chen* 062401

## Optoelectronics

Graded index separate confinement heterostructure transistor laser: analysis of various confinement structures  
*Mohammad Hosseini, Hassan Kaatuzian, and Iman Taghavi* 062501

## Other areas of optics

Luminescent solar concentrators with a bottom-mounted photovoltaic cell: performance optimization and power gain analysis  
*Ningning Zhang, Yi Zhang, Jun Bao, Feng Zhang, Sen Yan, Song Sun, and Chen Gao* 063501

## Perf

Guangdong 1

We pr  
 tion m  
 decisio  
 simula  
 improv  
 propos  
 These  
 scenari  
 OC  
 doi

In recent years,  
 has drawn no  
 transmission ra  
 deployment, an  
 formance of FS  
 stricted by se  
 atmospheric-ind  
 transmission. In  
 fect is a major i

To alleviate a  
 tion modulation  
 communication s  
 lation where a s  
 signal. In practic  
 can be used for t  
 hard decision de  
 while the other  
 uses a maximum  
 detector<sup>[1]</sup>. Owing  
 of soft decision de  
 coding, soft decis  
 munications<sup>[2-5]</sup>.

receivers are gene  
 array (FPGA)<sup>[6-10]</sup>  
 (EDWA) planar  
 to its hardware be  
 tive than the har

With the grow  
 study of FSO co  
 single modulatio  
 to control error  
 (ARQ) in the F  
 theoretical analy  
 and the combin