

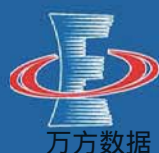
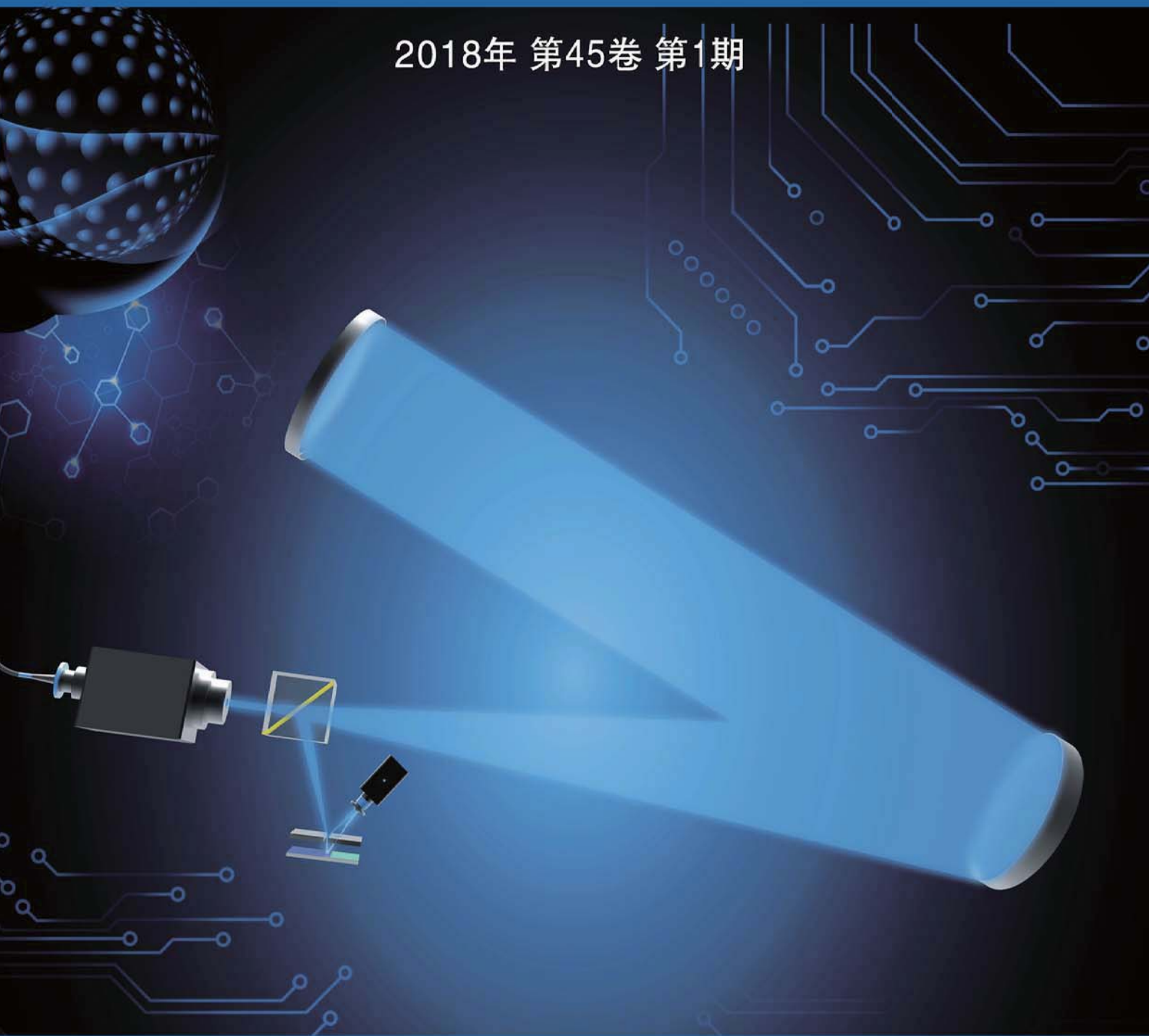
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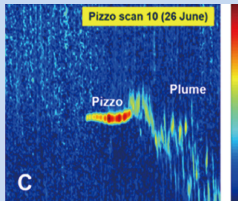
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本期封面图片由南京理工大学孟诗(170536)提供

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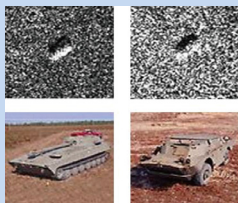
Review



Review of measurement for atmospheric CO₂ differential absorption lidar 170452
Hong Guanglie, Zhang Huaping, Liu Hao, Hu Yihua

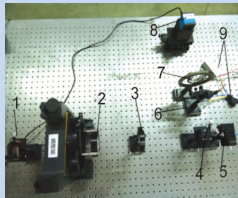
Differential absorption lidar is an indispensable tool to measure atmospheric CO₂ for temporal and spatial distribution. The absorption of CO₂ gas cell as a reference to stabilize seed light frequency and the precise control of cavity length lock the on-line wavelength of transmitter, is the key technique for DIAL to measure atmospheric CO₂.

Article



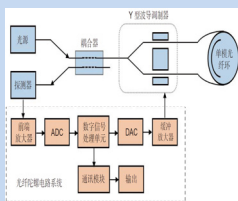
Fast SAR target recognition based on random convolution features and ensemble extreme learning machines 170432
Gu Yu, Xu Ying

The proposed algorithm has the advantages of easy implementation and fewer adjustable parameters, and improves classifier's generalization performance through adoption of ensemble learning ideas.



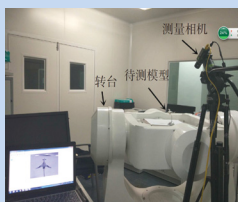
Effect of speed of rotated diffuser on image quality of interference fringes 170492
Zhang Jiaying, Wang Hongjun, Zhu Xueliang, Liu Bingcai, Tian Ailing

Since the coherent noise affected the quality of the Fizeau's interferograms in the large aperture, the coherence of the beam was changed by rotated diffuser to reduce the noise of the interfering system.



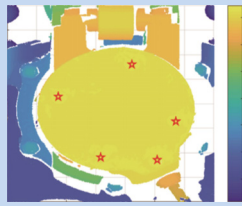
The application of low-noise DC-DC power source in fiber-optic gyroscope system 170517
Chen Xian, Yang Jianhua, Zhou Yilan, Shu Xiaowu

In this work, the cause of spike noise and the influence mechanism were clarified. The slew rate control technology was researched and proved to be an effective solution to prevent spike noise of FOG power source.



Monocular position and pose measurement method based on surface topography of object 170522
Guan Yin, Wang Xiangjun, Yin Lei, Wan Zijiang

In order to obtain the change of posture of moving objects in wind tunnel experiment, a method of single-camera visual pose measurement based on three-dimensional topography model of object surface is proposed. The experimental results show that the method can be used for practical measurement.

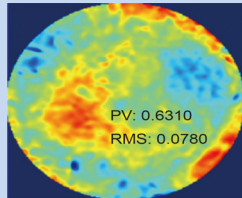


Automatic recognition of bolts on locomotive running gear based on laser scanner 3D measurement

170532

Huang Qian , Wang Zeyong , Li Jinlong, Jiang Wennan, Gao Xiaorong

The locomotive running gear 3D point cloud data are obtained by line-structured laser scanner, and the bolts on the locomotive running gear under the 3D point cloud data are recognized and located automatically. The experimental results verify the effectiveness of the proposed method.



Instantaneous wavefront measurement of large aperture optical elements

170536

Meng Shi, Chen Lei, Zhu Wenhua, Sun Qinyuan, Zhang Rui

In order to measure the instantaneous wavefront of large aperture optical elements, a method based on the structure of oblique incidence of reflective shearing point diffraction interferometer is proposed. The results indicate that the root mean square value is in accord with that acquired by SID4 wavefront sensor (less than $1/50\lambda$).

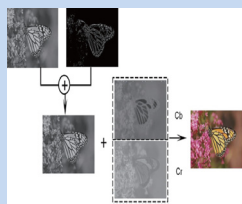


Image super-resolution reconstruction by fusing feature classification and independent dictionary training

170542

Wang Ronggui, Wang Qinghui, Yang Juan, Hu Min

A new effective super-resolution method is proposed. The experimental results show that the proposed method has a significant improvement in the reconstruction effect compared with other classic methods.



An automatic white balance method via dark channel prior

170549

Wang Fei, Wang Wei

In order to overcome the problem that white balance failure caused by white region detection error in automatic white balance, a white balance method is proposed based on dark channel prior.



Visual perception based rate distortion optimization method for high dynamic range video coding

170627

Yang Tong, Yu Mei, Jiang Hao, Jiang Gangyi

In view of the drastic increase of storage resources and transmission bandwidth requirement for HDR video compared to the traditional LDR video, a dynamic rate distortion optimization algorithm is proposed based on visual perception for HDR Video encoding to improve the performance of HEVC Main 10 for coding HDR video.