

JEMNÁ MECHANIKA A OPTIKA

VĚDECKO-TECHNICKÝ ČASOPIS
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Cena čísla 40 Kč včetně DPH

FINE MECHANICS AND OPTICS

SCIENTIFIC-TECHNICAL JOURNAL
VOLUME 56 2/2012

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Price for single copy: 40 Kč incl. VAT

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Development of the optometry study at the Palacký University Olomouc (J. Wagner, J. Bajer) 43

This text informs about the valuation and accreditation of the optometry study at the Palacký University Olomouc by the European Council of Optics and Optometry. This process is realised in the frame of the pilot project of the accreditation of the European Diploma in Optometry. Its aim is to make accessible the European Diploma in Optometry to the wider professional public.

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Department of Optometry and Orthoptics, Faculty of Medicine, Masaryk University will invite students in the new

(S. Petrová, S. Synek) 45
The 18th International Fair for Eye Optics, Optometry and Ophthalmology is forthcoming and this significant professional and social event is also an occasion to reflect the past achievements and to consider the future trends.

Changes of higher-order aberrations of the eye after the premium photorefractive keratectomy (F. Pluháček, E. Hladíková, J. Bajer, U. Tavanždi)..... 47

This article presents results of the statistical analysis of higher-order aberrations changes after the wave-front guided photorefractive keratectomy (PRK). First, two most frequent types of laser refractive surgeries (PRK and LASIK) are briefly introduced and the problems of the eye aberrations and their numerical description are presented. Next, the studied sample of eyes is characterised and the methodics of the research is described. Data are statistically evaluated with regard to the surgery-induced changes of the aberrations and their relationship with the preoperative optical state of the eye. The obtained results prove the significant changes of some aberrations.

Preoperative instruments to diagnose astigmatism (P. Beneš) 50

Patient-friendly tonometer (P. Beneš, S. Petrová) 52

Comparison of oblique beams' astigmatism of third and fourth orders for thin spherical spectacle lens

(A. Mikš, J. Novák, P. Novák) 53

The article demonstrates and analyzes the fifth-order theory of oblique astigmatism of a thin spherical spectacle lens and a comparison to the third-order theory and exact ray tracing is performed. It is shown that the fifth-order aberration theory makes possible to calculate analytically the shape of the spectacle lens with corrected astigmatism even for large angles of field of view. It can be used for the initial design of lenses with corrected astigmatism for large angles of field of view. However, we can conclude from our analysis that astigmatism of the fifth order has not a considerable effect on the image quality of the spectacle lens.

Keywords: oblique astigmatism, fifth-order aberration theory, spectacle lens

Methods of a deformable mirror piece deflection measurement (Š. Němcová, J. Zicha)..... 57

This article deals with possible methods of measuring (small) deformations of a piece of deformable mirror for laser applications. Three measurement methods are described, their resolution and conditions of their use. Also there is discussed a suitability of each method in respect to the type of sample.

Unified interpretation of the perturbed circulation of electrons or photons by means of a Schrödinger equation

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Experimental investigation of transmission loss in special dual-core microstructured optical fiber

(P. Stajanča, I. Bugár, J. Chovan, R. Buczyński, F. Uherek) 62

The following article presents the results of an experimental study of transmission losses in a new type of dual-core microstructured fiber made of multi-component glass PBS-57A. The investigated fiber was custom designed to exhibit an increased nonlinearity and a sub-centimeter coupling length in a near infrared region. The spectral character of losses was examined for separate excitation of each fiber core in the spectral region of 1460 – 1580 nm using the cutback method. Attenuation coefficient values obtained for separate core excitation correspond with each other implying a good quality and symmetry of the fiber microstructure. The presented results are in agreement with other publications concerning transmission losses in microstructured optical fibers made of multi-component glasses and provides valuable information for future theoretical and experimental studies of the investigated fiber.

Keywords: microstructured optical fibers, dual-core optical fibers, multi-component glasses, transmission losses, cutback method

Unique optical method helps to solve the shape deviations measurement of large-sized components just in machine tool

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