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CONTENTS

The intraocular lens dioptric power calculation by the ray tracing method (M. Falhar, P. Mlčák, J. Řehák) 31

The cataract is the physiological process of the aging which is treated by the ophthalmological surgeon. The surgeon removes the opacity mass from the human lens and insert the intraocular lens (IOL) with the specific dioptric power. The implant dioptric power calculation is realized by formulas based on the statistical principles. The accuracy of these formulas is good in the biometric normal eye (the axial length of the eye 22 to 24 mm, keratometry of the cornea around 43 D). However, the dioptric power calculation of the implant in the non-biometric standard eye leads to the unexpected postoperative axial refraction. The new proposed method based on the ray tracing allows the computation with the higher accuracy. The accuracy of this method was confirmed by the clinical study.

Keywords: IOL, intraocular lens, dioptric power calculation, ray tracing, eye, the biometry of the eye, cataract, the axial length of the eye.

Svatopluk Synek in his sixties 37

Application of special contact lenses in optometrist's practice (L. Hřčková, S. Petrová) 38

The research programs intended to improve an optometrist's practical skill are a part of bachelor's and especially MA theses at the Department of Optometry and Orthoptics, Faculty of Medicine, Masaryk University in Brno. Study results can be used for treatment of interesting data, sometimes informative, but often statistically significant. The relevance of obtained domestic data is compared with the external sources. This work deals with special contact lenses and generally their special applications. Also the frequency rate of lenses usage structured accordingly to the different workplaces (private, chain stores and clinics) could be interesting for wide professional public.

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The second training year for optometrists in the Faculty of Biomedical Engineering, Czech Technical University

(J. Novák) 41

Simple quality testing of microscope objective lenses

(A. Mikš) 42

This work is devoted to the straightforward and fast methods of quality testing applicable for microscope objective lenses, what is important for a decision what lens to buy or which one is the most suitable for the given purpose.

Determination of engine inertia moment

(M. Pexa, J. Pošta, B. Peterka) 49

The use of dynamic methods for measuring operational parameters of road vehicles begins to increase due to its low demands on time and investment funds. Dynamic measurement of engine performance parameters are generally based on knowledge of the rotating mass moment of inertia of engine and gearing mechanisms including driving wheels. However, it is difficult to obtain an indication of the correct moment of inertia. This paper describes a newly proposed possibility of measurement that is carried on roll test bed with loose rollers. The result of measurement is the moment of inertia, which can also be used in the measurement of performance parameters, brake performance, etc.

The Vision Care Institute™ of Johnson and Johnson, Ltd. and its role in training of optometrists

(M. Medřický, J. Novák) 52

Absorption surface treatment of spectacle lenses

(V. Pavlas, J. Brožek) 53

Dealers with spectacle lenses have recently extend the range of delivered products including their surface treatment what means a puzzle for customers to be well versed in. We are frequently finding some incorrect or misleading information published in various journals. The company KONVEX - Recept optika s.r.o. is for many years engaged in surface treatment of spectacle lenses and it is therefore possible to inform briefly about the present state of affairs on the base of production experience and feedback from optometrists.

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Carbon composites and service engineering metrology

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