

# JEMNÁ MECHANIKA A OPTIKA

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ROČNÍK 53 2/2008

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# FINE MECHANICS AND OPTICS

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## **Formulas for intraocular lens power calculation**

(M. Falhar) ..... 35  
This article summarises formulas used for calculation of intraocular lenses (IOL) power. A historical review is followed by a complete description of formula generations. The problems related to the calculation are discussed, i.e. using the cornea value  $K$ , determination of an effective lens position ELP in the dependency on the axial length, including local valid statistical inferences and an adaptation of the formulas to individual needs. Graphically presented formulas with tables can be selected for their best clinical use. The possible solution for future IOL applications with the flexible lens power is proposed.

## **Aspheric spectacle lenses** (A. Mikš) ..... 41

The theory of third-order aberrations of the system rotary symmetrical aspheric thin lenses and the relations for calculation of the shape rotary symmetrical aspheric spectacle lenses with zero astigmatism are stated. A comparison the possibility of the aspheric and spherical spectacle lenses is presented.

## **Educational chances in ophthalmic optics- optometry**

(S. Synek, S. Petrová) ..... 44  
This notification informs about different types of schools offering education in the fields of Eye Optics and Eye Optometry for students after their graduation from an elementary school or a high school.

## **Progress in optometry studies at the Palacky University**

**in 2007** (J. Wagner, F. Pluháček) ..... 46

## **New enhanced photovoltaic system at ČZU in Prague**

(V. Poulek, P. Bican, J. Mareš, M. Libra) ..... 48

## **Fifty years from the founding of the Department of Precise Mechanics and Optics at the Technical University in Budapest**

(A. Ákos) ..... 50  
The Department of Precise Mechanics and Optics at the Technical University in Budapest was constituted fifty years ago. This only one Hungarian educational integrated university concept systematically

offers an education for technical, development, design and research engineers competent enough to solve efficiently the industrial tasks in the area of precise mechanics and optics in line with changes in the technical requirements and international expectations. The department staff recently participated in the large research activities and established relations with international scientific and professional communities, especially with the former Department of Precise Mechanics and Optics at the Technical University in Prague.

## **Technical calculation and measurement of a tunnel lighting equipment** (P. Horňák) ..... 51

### **prof. Ing. Pavol Horňák, DrSc. - his sixty fifth birthday**

(J. Nevřala) ..... 52

## **Environmental scanning electron microscopy and their application possibilities** (V. Neděla, L. Roubalíková, F. Weyda) ..... 53

Article is focused on environmental scanning electron microscopy as a universal method for investigation of insulating and water containing samples. Advantages of this microscopy method are demonstrated by experiments that study biological tissues of fossil insects embedded in amber or analyze morphological structure of root canal walls prepared by laser.

**Key words:** environmental scanning electron microscopy, AQUASEM II, amber, tissue of fossil insect, morphological analysis of root canal walls.

## **Secondary electron images in the scanning electron microscopes**

(I. Konvalina, I. Müllerová) ..... 57

This article deals with the calculations of collection efficiency of the Everhart-Thornley detector in the different scanning electron microscopes. The effect of magnetic and electrostatic fields distribution in the chamber of microscope on the trajectories of the secondary electrons on the final image contrast is demonstrated for three detection systems.

## **Design and testing of solar controller in an island photovoltaic system** (J. Mareš, M. Libra) ..... 60

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## **Conference Diffractive Optics 2007 Barcelona**

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