

JEMNÁ MECHANIKA A OPTIKA

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Calculation of spherical aberration correctors in electron optics (B. Lencová) 263

The paper gives a brief overview of computational methods used in the Institute of Scientific Instruments of AS CR for the design of electron optical devices. The possibilities of the software are then illustrated on the computations of correctors of spherical aberration for transmission and scanning electron microscopes.

Demonstrational photovoltaic system FVS 2001E

(M. Vašina) 267

Energy prices are increasing all the time. Further worldwide supplies of fossil fuels are decreased. These supplies will be exhausted in the future. Therefore, it is necessary to find new energy sources. The direct transformation of solar energy into electrical energy through the use of photovoltaic cells is one of the possibilities. The aim of this paper is to illustrate the working principle of the photovoltaic system FVS 2001E that is located on an external wall of a building of Tomas Bata University in Zlín.

Keywords: solar radiation, photovoltaic system, radiance, power, energy

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Influence of the refraction index and dispersion of spectacle lens on its imaging properties (A. Mikš, J. Novák, P. Novák) 280

The paper shows an influence of the refraction index and dispersion of spectacle lens on its imaging properties. Relations are presented for calculation of curvature radii of anastigmatic spectacle lenses

and their chromatic aberration. Moreover, the formulas are derived for calculation of the change of astigmatism of spectacle lens due to dispersion of spectacle lens material.

Properties of rectangular flexure hinge (M. Antoš) 283

Flexure hinge having a rectangular cross section is often used as a basic construction element in micropositioning systems. The article deals with known theoretical relations for computing its mechanical properties. Practical limits of the maximal angular deflection of flexure hinges made from different materials and different dimensions were determined experimentally.

From technical library (J. Novák) 285, 291

Production of car window controllers (P. Kábrt) 286

Application of conditioning chamber for measurement of grain equilibrium moisture (J. Krupička, B. Hanousek, S. Laga) ... 288

A measurement of equilibrium moisture of the agricultural products by gravimetric methods can be accomplished by well-known procedures usually consuming a lot of time essential for reaching equilibrium state between the tested object and conditioned environment. In this article we describe the measurement results of equilibrium moisture of wheat, barley and maize grains obtained during desorption process in conditioning chamber providing a stabilised climate of drying space. Regression equations for drying curves $\omega = f(t)$ and also from this derived isothermal lines $\omega_r = f(\phi)$ valid for equilibrium moisture obtained with use of usual gravimetric method and the proposed reduced gravimetric method are presented here. The applicability of conditioning chamber Feutron – 3001 used for measurement of grain equilibrium moisture was proved with sufficient probability by mathematical statistical analysis of the measured results. The verified reduced method offers results differing in compare to the control usual gravimetric method in moisture less than 1 % and consuming only 14.84 % - 10.32 % of testing time according to the permissible measurement error 0.25 % - 0.5 %.

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