

JEMNÁ MECHANIKA A OPTIKA

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ROČNÍK 51 11 - 12/2006

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- XVth Czech-Polish-Slovak Conference on Optics**
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- Comparison of simulations of total joint artificial wear with results of its measurement by the optical 3D methods**
(D. Mandát, M. Pochmon, M. Hrabovský, T. Rössler) 297
The paper gives the comparison of results of total joint artificial wear measurement with simulation carried out using the knowledge of its mechanical wear. The used methods are the 3D scanning profilometry topografie and Fourier profilometry. The results are compared with the latest used measurement method – gravimetry. The uncertainties of methods are not introduced in text but only the primary results of measurements, which are the basic of methodology of verification of possibility of application of these methods for the given purpose.
- Visual clarity improvement of electronic radiograms**
(J. Sedláček) 299
- Interference modulated laser beam in moiré topography**
(L. Bartoněk, J. Keprt) 302
More effective method for description of the form of a 3D object and curved surface, than shadow moiré topography, was proposed. Interference modulated laser beam that illuminates reference plane screen and the object using modification of the interference pictures by means of maxima of interference fringes, enables characterization of the object by map of contour lines. Due to the change of the position of contour lines by shift of original phase we get more precisely description of the 3D surface and also the space imagine of the studied object.
- Conference EOS Topical Meeting 2006 in Paris**
(J. Pala) 307
- An influence of double imaging on the optical transfer function**
(R. Melich, Z. Melich) 308
Prisms or prism systems in optical systems are used in different fields of science and engineering very frequently. Their technological deviations (e.g. degree of deviation between sides, etc.) induce an image doubling. In this paper we present a detailed analysis of the image doubling influence on the Modular Transfer Function (MTF) of the optical system. Relations that enable to determine the acceptable technological tolerances of optical prism elements so that allowed image doubling does not create the unacceptable decrease of MTF of optical system under a test are derived.
- Measurement of the spectrum of luminescent diode by means of interference spectroscopy** (P. Pavlíček, O. Hýbl) 312
The article describes the measurement of spectrum of a luminescent diode by means of interference spectroscopy. The form of the spectral density is determined from the measured autocorrelation function. The autocorrelation function is measured by means of Michelson interferometer. Basic relations for the calculation of spectral density from the measured autocorrelation function are derived. The focus of the article is concentrated on the correct setting of sampling parameters of the interference spectrometer.
- Compact optical tweezers** (M. Šerý, Z. Lošťák, M. Kalman, P. Jákl, P. Zemánek) 316
In this article we present laser diode based tool for optical manipulation with microobjects. This tool is very suitable for micromanipulations with large spectrum of specimens in the diameter range 0.5 - 30 μm . Adapter is directly mounted to the microscope without any additional improvements and fits to many commercially available microscopes. Key feature of this adapter is compactness, usability and simple handling. With this adapter user takes advantage of wide spectrum of commercially available laser diodes with different wavelengths. For this reason the tool can be used in many areas such as biology, medicine and measurements.
- Surface topography optical identification generated by abrasive waterjet** (J. Valíček, S. Hloch) 320
The paper deals with a newly developed optical no-contact measurement method and its importance in comparison with classical measurement by contact profilometer used for quality measurement of the surfaces created by abrasive waterjet technology. There are defined and determined measured parameters, the way of creating a database of values measured, the way of data statistical and analytical processing for optimising the technology, improving the quality of output control.
- Measuring technique for quality control** 322
- Relationship analysis of tooled surface morphology and time cutting** (M. Gombár) 323
The article deals with relation identification of cutting time and morphology of tooled surface, expressed by surface roughness profile parameters – average roughness and creation of mathematical – statistical model of the investigated dependence.
- Estimation of abrasive waterjet technology factors significance at the cutting of aluminum and stainless steel**
(S. Hloch, J. Valíček) 326
Article deals with an estimation of abrasive waterjet technology factors significance at the cutting of aluminum and stainless steel by means of factor analysis.
- Hydration System for Environmental Scanning Electron Microscopes** (V. Neděla, J. Maxa) 329
The paper is concerned with description of the unique hydration system suitable in particular for observation of specimens in a moist/liquid state and for realization of certain dynamic „in situ” experiments, using the environmental SEM type microscopes. Water vapour pressure values were measured in the microscope specimen chamber, depending on valve opening and water vapour temperature, thus proving capability of fine pressure control by the system. We also demonstrate a wide scope of practical applications of the system.
- Olympus E-400: The smallest digital reflex camera on the world** 332
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