

JEMNÁ MECHANIKA A OPTIKA

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Analog electro-optical transmission system for measurement purposes (J. Švarný).....166
The work deals with design and implementation of an analogue electro-optic transmission system convenient to solve some specialized tasks in the field of diagnostics and measurements. The proposed system is designed to solve several requirements that are beyond the limits of conventional metallic transmission medium. Especially it is the case of broadband transmission, extreme length of the transmission medium and high galvanic barrier between input and output that have to be achieved simultaneously.

Microscopy method for diagnosis of materials and structures in electronics (J. Řeboun, A. Hamáček, T. Džugan).....170
Applications of appropriate microscope techniques for electronic materials and interconnection structures diagnostics are shown in this paper. The paper deals with prospective semiconductive, conductive and insulative organic materials research and diagnostics of components, substrates and its interconnections. Diagnostic equipment described in this paper is available in the reference laboratory of microscopy at the Department of Technologies and Measurement, University of West Bohemia in Pilsen.
Keywords: microscopy diagnostics, laser confocal microscope, LEXT, atomic force microscope, AFM, materialographic cross-section.

Instructions for authors.....174

Design problems of planar strips and systems
(T. Blecha).....175
Department of Technologies and Measurement deals with the design, simulation and measurement of planar strips, components and systems. The design of these planar strips and systems is very difficult especially for high frequency areas where the material parameters or geometric forms can influence on the resulting function of the electronic equipment. This article deals with analysis possibilities of these planar strips and systems in frequency domain. Finally the influence of substrate parameters on frequency characteristics of planar microstrip filters is presented.

Keywords: planar strips, scattering parameters, high frequency systems, simulation, measurement

Organic electronics (T. Džugan, A. Hamáček, S. Pretl)180
Organic electronics represents a revolutionary, new way of electronics, which is based on the combination of a new class of materials and large area, high volume deposition and patterning techniques. Often also terms like printed, plastic, polymer or flexible electronics are used, which essentially all mean a progressive way of electronic manufacturing beyond the classical approach. Till today, it has been demonstrated many electronic devices based on organic materials, for instance organic photovoltaic cells, memory devices, printed RFIDs, batteries, sensors or OLED displays. Activities in the field of organic electronics conducted at the Department of Technologies and Measurements are focused mainly on sensor applications and construction of organic field-effect transistors.

Keywords: Organic electronic, polymer, sensor, transistor, OFET

Application of neural networks for evaluation of impulse response from MEMS accelerometers

(L. Kupka, O. Tůmová).....184
The aim of this paper is to present a cheap post-production test for MEMS (Micro Electro Mechanical Systems) accelerometers. The method is based on the impulse response (IR) using neural network predicting values of crucial parameters of MEMS component. Current mechanical testing is time consuming and costly. The MEMS structure combining electro-thermal excitation and piezoresistive sensing was selected for this experiment including the structure model generated using the Simulink software package (MATLAB). The simulation results demonstrate an excellent prediction of neural network and their outstanding agreement with the proposed model.

Keywords: MEMS testing, neural network, neural network pruning

Usage of fuzzy logic in the area of out-of limit values

(K. Veishepl, O. Tůmová).....187
The article describes use of fuzzy logic in the evaluation of non-limited values at measurement of lightning arresters in telecommunication networks. It describes the application of α -cut method and evaluates their electrical parameters and functional features based on the measurement of a selected sample of lightning arresters.

Keywords: electrical parameters, ignition voltage, fuzzy logic, α -cut method, interval, measurement, uncertainty, analysis, process, risk, risk management

From technical library (J. Novák).....190

Remembering prof. RNDr. Ing. Jaroslav Pospíšil, DrSc.
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