

JEMNÁ MECHANIKA A OPTIKA

VĚDECKO-TECHNICKÝ ČASOPIS
ROČNÍK 55 10/2010

OBSAH

20 let Bosch Rexroth v České republice (D. Cába).....	263
Výhodné, funkční a komplexní řešení pro CNC Bosch Rexroth IndraMotion MTX micro (R. Drobílek).....	264
Intenzita ozáření slunečních panelů v závislosti na jejich orientaci a natáčení ke slunci (J. Toušek, O. Novák).....	266
Zlatá medaile MSV 2010 z oboru měřicí techniky (Red.).....	269
Porovnání PV systémů s pevným a proměnným sklonem PV panelů (M. Libra, P. Sedláček, J. Mareš, V. Poulek).....	270
Spomienka na 17. SCP OC (D. Senderáková).....	272
MOTEK, BONDEXPO A MIKROSYS (J. Kůr).....	274
OPTA 2011, ELECTRON 2011	275
Využitie digitálnej obrazovej korelácie na určovanie vlastných tvarov a frekvencií sústavy (F. Trebuňa, R. Huňady).....	276
Změny dielektrického spektra polymeru při dlouhodobé expozici za nízkých teplot (V. Holcman, R. Stranik, K. Liedermann).....	279
Aplikace teorie fyzikální podobnosti ve výpočtovém programu pro návrh vodních turbín (M. Polák, V. Polák).....	281
VÝSLEDKY SPOLUPRÁCE MESING, ÚPT AV ČR A MEOPTA – OPTIKA NA MSV BRNO 2010 (J. Kůr).....	285
Nejmodernější armádní technika na výstavě FUTURE SOLDIER (J. Oulehla).....	286
Projekt Operačního programu Vzdělávání pro konkurenceschopnost (K. Nevřalová).....	287
USETEC 2011	287
LASER World of PHOTONICS 2011	287
IDET	288

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Cena čísla 40 Kč včetně DPH

FINE MECHANICS AND OPTICS

SCIENTIFIC-TECHNICAL JOURNAL
VOLUME 55 10/2010

CONTENTS

20 let Bosch Rexroth v České republice (D. Cába).....	263
Advantageous, functional and complex solution for CNC Bosch Rexroth IndraMotion MTX micro (R. Drobílek).....	264
Intensity of irradiation of solar panels in dependence on their orientation and tracking towards the sun (J. Toušek, O. Novák).....	266
MSV 2010's gold medal for measurement technique (ed.).....	269
Comparison of photovoltaic panels with fixed and variable declination angle (M. Libra, P. Sedláček, J. Mareš, V. Poulek).....	270
Remembrance of 17th Slovak-Czech-Polish Optical Conference (D. Senderáková).....	272
MOTEK, BONDEXPO and MIKROSYS (J. Kůr).....	274
OPTA 2011, ELECTRON 2011	275
Using of Digital image correlation for determination of eigenshapes and eigenfrequencies (F. Trebuňa, R. Huňady).....	276
Change of dielectrics spectrum of polymers during long exposition and low temperatures (V. Holcman, R. Stranik, K. Liedermann).....	279
Application of theory of physical similarity for turbines designing in hydropower plants (M. Polák, V. Polák).....	281
Results of collaboration among Mesing, Institute of Scientific Instruments and Meopta – optika presented in MSV BRNO 2010 (J. Kůr).....	285
Advanced military engineering in the FUTURE SOLDIER exhibition (J. Oulehla).....	286
Education for Competitiveness Operational Programme (K. Nevřalová).....	287
USETEC 2011	287
LASER World of PHOTONICS 2011	287
IDET	288

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CONTENTS

20 years of Bosch Rexroth in the Czech Republic (D. Cába).....	263
Advantageous, functional and complex solution for CNC Bosch Rexroth IndraMotion MTX micro (R. Drobílek).....	264
Intenzity of irradiation of solar panels in dependence on their orientation and tracking towards the sun (J. Toušek, O. Novák)	266
The intensity of illumination of a solar panel depends on the angle between its normal and the direction of the solar beam and it can be, consequently, enhanced for the panel tracked towards the sun. The aim of the paper is to compare the intensity of illumination of the fixed (non-tracking) panel and illumination of the panel with one or two tracking axes. The annual irradiation and irradiation in individual months was determined using the coefficient of contamination $Z = 4$ characterizing the atmosphere in towns. The data of the sun elevation and azimuth during one year for the latitude 50° N were utilized for the calculation.	
Keywords: direct radiation, diffuse radiation, irradiation, solar panels, tracking	
MSV 2010's gold medal for measurement technique (ed.)	269
Comparison of photovoltaic panels with fixed and variable declination angle (M. Libra, P. Sedláček, J. Mareš, V. Poulek)	270
Remembrance of 17th Slovak-Czech-Polish Optical Conference (D. Senderáková)	272
MOTEK, BONDEXPO and MIKROSYS (J. Kůr).....	274
OPTA 2011, ELECTRON 2011	275
Using of Digital image correlation for determination of eigen-shapes and eigenfrequencies (F. Trebuňa, R. Huňady)	276
The paper deals with possibilities of using high-speed correlation system Q-450 produced by Dantec Dynamics for determination of modal parameters of tested object. In the paper there is described a new methodology for experimental measurement of eigenshapes and eigenfrequencies and explained a design of software developed for evaluation of such measurements.	
Keywords: digital image correlation, modal analysis, new methodology, Modan	
Change of dielectrics spectrum of polymers during long exposition and low temperatures (V. Holcman, R. Stranik, K. Liedermann)	279
The paper deals with the influence of longtime exposition of typical glass – forming material at low temperatures (100 – 300 K) over its dielectric spectrum in frequency range 100 Hz – 1 MHz. Changes of the process of high-frequency part of watched relaxation maximum depending on the time of exposition are studied in the main. The transition from linear process $\varepsilon'' = f(\omega)$, watched at short time of exposition, to incurvate process, watched at protraction of exposition, is explicated as a denotation of another relaxation process, which is covered with the original relaxation maximum at short time of exposition and which crops out step by step from the background. The occurrence of this second relaxation process is watched according to two arguments – temperature of the sample and time of the exposition. The microscopic mechanism is discussed, which leads to its rise.	
Keywords: dielectric spectroscopy, glass materials, relaxation peak	
Application of theory of physical similarity for turbines designing in hydropower plants (M. Polák, V. Polák).....	281
Correctly designed turbine is a necessary condition for efficient usage of water energy as a renewable resource. In solving this issue, the Theory of Physical Similarity of Hydraulic Machines is a useful tool. Its application in calculation model allows in approachable way by means of so-called specific speed to gain information on type and size of turbine for proposed hydropower plant. It is apparent from comparison of model outcomes and already realized solution (in this case hydropower plant Slapy on river Vltava) that the calculated values do not differ from the real ones more than by 10 %.	
Results of collaboration among Mesing, Institute of Scientific Instruments and Meopta – optika presented in MSV BRNO 2010 (J. Kůr)	285
Advanced military engineering in the FUTURE SOLDIER exhibition (J. Oulehla).....	286
Education for Competitiveness Operational Programme (K. Nevřalová)	287
USETEC 2011	287
LASER World of PHOTONICS 2011	287
IDET 2011	288