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OBSAH

Optická soustava puškohledu s proměnným zvětšením a konstantní polohou výstupní pupily využívající aktivních čoček s proměnnou ohniskovou vzdáleností (A. Mikš, J. Novák, P. Novák)	67
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Bližší informace o poslání časopisu, pokyny pro autory, obsah časopisu apod. je uveden na internetu: <http://jmo.fzu.cz/>

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Optical system of zoom rifle scope with constant position of exit pupil using active tunable-focus lenses

(A. Mikš, J. Novák, P. Novák) 67

The paper deals with a theory of calculation of parameters of a rifle scope with a variable magnification and a constant position of the exit pupil, which is independent on the magnification of the rifle scope. A four-element optical system is composed of three active optical elements with continuously tunable focal length. The advantage of the proposed optical system is a fixed position of first three elements of the system. Thus, it is not necessary to design and fabricate a complex mechanical construction as is the case of present types of classical riflescopes.

Keywords: rifle scope, active tunable-focus lenses, optical design

Vibrational behavior of tractor engine hood (I. Gravalos, S. Loutridis, T. Gialamas, A. Augousti, D. Kateris, P. Xyradakis, Z. Tsiropoulos, M. Libra) 69

The main source of vibration in agricultural tractors is the engine. Engine vibration results from the combustion process itself and the mass asymmetry in engine rotating elements. The vibration is transmitted from the engine to the tractor hood. The objective of this study is to record and analyze the vibration patterns on the hood under different operational engine speeds (800 ÷ 2200) rpm. Two different wheeled tractors were used for the experiments. The hood of the first tractor was made from steel sheet. The new hood design of the other tractor was made from fiber reinforced plastic material. The following instruments were used: the PSV-400 scanning laser vibrometer (Polytec), and the 4500A piezoelectric accelerometer (Brüel & Kjaer) that served as reference accelerometer. The experimental data showed significant deflection of the hood surface. Vibration analysis between the two types of engine hoods showed that the steel sheet was indeed very stiff, in contrast to the fiber reinforced plastic hood, which better absorbed the mechanical vibration due to the increased damping.

Keywords: vibration, tractor, engine, noise

Air-cooled merging of laser beams

(M. Miler) 71

Sensors for tactile information (J. Oliva, J. Volf) 72

This paper describes new construction of tactile sensor, which enables scanning and measurement of the normal and the tangential force of gripping subject by robot. Its advantage is automatic indication of slipping, too. All these functions are integrated in one sensor. The transducer enables current scanning all measured parameters.

Application of nanofibers and carbon nanotubes

(L. Sodomka) 74

In this paper the applications of polymer nanofibers and carbon nanotubes in science, technique and praxis are briefly reviewed, what can be also incentive for application of nanofibers.

Interference measurement of the telescope Meostar S2 82-APO aberrations, measurement of its moving parts and optical subassemblies (S. Michal, S. Ševčík) 82

The aim of this paper is an introduction to the principles of interference measurement of telescope aberrations. As a descriptive model we have chosen a monocular telescope Meostar S2 – 82 APO – product innovation from Meopta belonging to the top market products.

Two Werner von Siemens Excellence Awards for teams from Brno 85

The Award for the most excellent result in basic research and the Award for the most excellent result in development and innovation were granted to teams coming from Brno. The first is aimed to the Institute of Scientific Instruments of the Academy of Sciences of the Czech Republic and the other one to the Institute of Physical Engineering, Faculty of Mechanical Engineering, Brno University of Technology.

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