

# MATEMATIKA A VYSOKÉ ŠKOLY

## MATHEMATICS AND UNIVERSITIES

Beloslav RIEČAN

**Abstract:** In the contribution two aspects of education of mathematics are considered. The first one are applications of mathematics, the possibility to understand some problems of real life, to contribute to their exact formulation and even to their solution. The second one is the communication of mathematical thinking, opening the door to an area of its beauty, goodness and truth. In this paper a special attention is devoted to the stochastic thinking, to some actual problems in education of probability and mathematical statistics.

**Keywords:** applications of mathematics, probability and mathematical statistics, mathematical thinking.

## NÁVRH NOVÉHO KAMUFLÁŽNEHO VZORU PRE POĽNÉ ODEVY VOJAKOV OZBROJENÝCH SÍL SLOVENSKEJ REPUBLIKY

### DESIGN OF A NEW CAMOUFLAGE PATTERN FOR COMBAT SUITS IN THE ARMED FORCES OF THE SLOVAK REPUBLIC

Alojz BAJČI

**Abstract:** The paper deals with problems of optimizing the camouflage of a soldier. It describes the methods which are used in designing new camouflage for combat suits of troops in the Armed Forces of the Slovak Republic. The results, which have been obtained by statistical processing the values obtained experimentally from measuring chromatic coordinates and remission spectra of terrain objects, have been used for creating a new camouflage design. The new design testing in the field has confirmed considerable improvement of camouflaging properties when compared with the presently used combat suit.

**Keywords:** camouflage, colour, chromatic coordinates, remission spectrum, night-vision, camouflage pattern.

## SEKURITIZACE BEZPEČNOSTNÍCH HROZEB V ČESKÉ SPOLEČNOSTI

### SECURITIZATION OF SECURITY THREATS WITHIN THE CZECH SOCIETY

Libor FRANK

**Abstract:** This article is dedicated to the topic of securitization of security threats and analyzing perceptions of public opinion concerning resources of imperilment in the Czech Republic. The text is divided into two parts: first part is aimed at adumbration of current approaches in security analysis, the approach of so-called Copenhagen School is presented mainly and its key components (especially concept of securitization etc.). The second part is focused on overview and comparison of public opinion relating to perception of security threats pursued from the beginning of 90's to the present within the framework of the Czech society. On the basis of mentioned results of public opinion researches it is possible to demonstrate the process of securitization of the concrete threat in surveyed time period

**Keywords:** Securitization, Security, Threat, Czech, Society.

## DISKUZE ZÁKLADNÍCH PROBLÉMŮ BEZPEČNOSTNÍ VĚDY

### DISCUSSION ABOUT FUNDAMENTAL PROBLEMS OF SECURITY SCIENCE

Josef JANOŠEC

**Abstrakt:** Article have a summary of the knowleges about possibilities to establishment „security science“. Content of article make a recommendation to use of Yin – Yang principle. Realized analysis of empirical knowledges about object of security. Presented theoretical models for description of problems connected with security questions. Realized discussion about fundamental problems of „security science“ and about possibilities to objectivizations and their exacting solutions. Recapitulate possible orientations for theorie and practice of „securitology“ – like a new name of the science about „security – non-security“.

**Keywords:** security, non-security, securitology, theory, model, security research, Yin – Yang principle.

### COMPARISON OF OPTICAL MODELS FOR THIN FILM SYSTEM OPTICAL PARAMETERS DETERMINATION

Stanislav JUREČKA, Emil PINČÍK, Robert BRUNNER

**Abstract:** Analytical expressions describing the spectral dependences of the optical parameters of the thin film play important role in semiconductor devices development and extraction of material parameters. Properties of dispersion models used for the optical parameters determination are described and the direct optical transition modeling method is used for the spectral reflectance of semiconductor thin film sample construction. Optical parameters of thin amorphous hydrogenated silicon sample were determined by the visual modeling and numerical optimization method based on stochastic genetic algorithm.

**Keywords:** semiconductor, optical properties, dispersion relations.

### NÁZORY ŠTUDENTOV NA VYUČOVANIE A HODNOTENIE BAKALÁRSKEJ FYZIKY NA AKADEMII OZBROJENÝCH SÍL GENERÁLA M. R. ŠTEFÁNKA V AKADEMICKOM ROKU 2004/2005

### THE STUDENTS' ATTITUDES TO THE TEACHING AND EVALUATING THE COURSE OF PHYSICS FOR BACHELORS AT THE ACADEMY OF THE ARMED FORCES OF GENERAL M. R. ŠTEFÁNIK IN THE ACADEMIC YEAR 2004/2005

Eva BAJČIOVÁ JUREČKOVÁ

**Abstract:** In the academic year 2004/2005, the first students of the full-time Bachelor study at the newly established Academy of the Armed Forces of General M. R. Štefánik in Liptovský Mikuláš began to attend the courses in the following scientific fields: Electronic Systems and Transportation Machines and Equipment. In the paper are processed the results of anonymous questionnaire containing students' attitudes to the teaching and evaluating of subjects Physics I and Physics II. The students of scientific fields mentioned above took a part in this inquiry.

**Keywords:** teaching, evaluating, Physics for Bachelors, anonymous questionnaire students' attitudes.

## NIEKTORÉ OTÁZKY TRANSFERU VEDECKÝCH POZNATKOV BEZPEČNOSTNÝCH VIED DO BEZPEČNOSTNEJ PRAXE

### SOME QUESTIONS OF THE TRANSFER OF SCIENTIFIC KNOWLEDGE OF SECURITY SCIENCES INTO SECURITY PRACTICE

Ján BUZALKA

**Abstract:** Generally about the transfer of scientific knowledge of crisis management into practice, methodological approaches in examination and explanation of the transfer of scientific knowledge of crisis management into practice, characteristic features of the transfer, content and procedural view of the transfer, levels of the transfer understanding.

**Keywords:** transfer of scientific knowledge, security sciences, security practice, characteristic features of transfer, transfer process, transfer speed, transfer frequency, transfer modulation, level of transfer intentionality, personal level of transfer, transfer perspectives.

## NÁVRH ÚPRAV PÁSOVÉHO MECHANIZMU PRE TICHÚ PREVÁDZKU

### PROPOSAL OF TRACK MECHANISM ADJUSTMENTS FOR SILENT OPERATION

Peter DROPPA

**Abstract:** The paper is aimed at analysis of track mechanism from the standpoint of design arrangement for silent operation. Problems of sound and vibration load of the crew are of considerable importance and that is why it is necessary to find efficient measures for reducing the sound and vibration load. It is especially important if we realize that track and wheeled vehicles compete for wide range of deployment and assigned numbers. Therefore, it is possible to assume that great attention will be paid to the presented problems in the near future.

**Keywords:** track vehicle, infantry fitting vehicle, chassis, track mechanism, locomotive mechanism, noise load, sound load, vibrations, resonance load.

## MILITARY UNIT AND BULK HANDLING SYSTEM AND THERMOVISION

Peter DROPPA, Ivan SUSEDÍK

**Abstract:** The importance of camouflaging military technology has increased due to development of new reconnaissance and aiming means which are now used by modern troops. The present time, as far as the military applications concerns, is characterized, in addition to other things, also by an effort to use, insofar as it is possible, all the frequency bands of electromagnetic radiation. Special and increasingly important position among them is being taken by the middle infra-red (MIR) and far infra-red (FIR) range that are commonly designated as thermal radiation or thermo vision range. Within the thermo vision band, in addition to the reflected radiation originating from other sources, the crucial role is played by natural radiation of the object itself. The reflectivity and emissivity behave as complementary quantities because an increase of one of them causes reduction of the other and vice versa. Camouflaging within the thermo vision band has to take these facts into account and that is why its realization is more demanding as far as the technology concerns.

**Keywords:** Automobile engineering. Unit and bulk handling system. Military engineering. Thermovision.

## ANALÝZA NIEKTORÝCH VŠEOBECNÝCH MODELOV MANAŽMENTU V GLOBALIZUJÚCEJ SA SPOLOČNOSTI

### THE ANALYSIS OF SEVEREL COMMON MODELS OF MANAGEMENT IN GLOBALIZED SOCIETY

Štefan HITTMÁR

**Abstract:** The paper deals with the opportunity of general managerial models. It describes former basic models for successes and excellence in management and some others fundamental theoretical models of management. It explains the fundamental principles of seven directions of development of management and express the opportunity of accommodation and application in real conditions. On the end of paper is described “new model of management”.

**Keywords:** Mangement, System, Control, Science, Theory, Recommendations, Trends, Model, Process.

## SIMULÁCIA ŠÍRENIA ÚNAVOVEJ TRHLINY V MIKROŠTRUKTÚRE VYUŽITÍM KONEČNOPRVKOVÉHO SOFTVÉRU ADINA.

### SIMULATION OF FATIGUE CRACK PROPAGATION IN THE MICROSTRUCTURE BY FINITE – ELEMENTS SOFTWARE ADINA

Mariana KUFFOVÁ, Mário ŠTIAVNICKÝ

**Abstract:** In the model of microstructure of magnesium alloy AZ 91D has been observed the growth of fatigue crack and the stress distribution by finite-elements software ADINA. The model has been loaded by symmetrical cyclic loading push – pull at the following conditions:  $\sigma_a = 15$  MPa,  $f = 25$ Hz.

**Keywords:** magnesium alloy, finite – elements software, fatigue crack, stress.

## TŘÍDIMENZIONÁLNÍ KOLORIMETRICKÉ STANOVENÍ CHLORU V OVZDUŠÍ

### TRISTIMULUS COLORIMETRIC DETERMINATION OF CHLORINE IN AIR

Vladimír PITSCHMANN, Zbyněk KOBLIHA, Emil HALÁMEK, Ivana TUŠAROVÁ

**Abstract:** A method of determination of chlorine in air is described that makes use a modified cotton indication tape which in the course of the analysis is being saturated with a chromogenic reagent based on 3-methyl-2-benzothiazolinone hydrazone and *N*-(1-naphthyl)ethylene-diamine. Passage of contaminated air gave rise to blue coloration of the indication tape and this was evaluated by tristimulus colorimetry. The measurement was performed on an LMG 173 spectrophotometer (Dr. Lange, Germany) working in CIE-L\*a\*b\* color system. According to the devised method it is possible to determine at least 0.02 mg.m<sup>-3</sup> of chlorine at air collection rate 1 dm<sup>3</sup>.min<sup>-1</sup> for 2 minutes. On the basis of the described technology it is possible to develop a gas analyzer for monitoring of chlorine in air. In principle, using such gas analyzer with suitable chromogenic system also makes it possible to determine other harmful substances in the atmosphere.

**Keywords:** Air analysis, chlorine, indicator tape, tristimulus colorimetry, 3-methyl-2-benzothiazolinone hydrazone hydrochloride, *N*-(1-naphthyl)ethylenediamine dihydrochloride.

## SEKURITOLÓGIA AKO INTERDISCIPLINÁRNY PREDMET

### SECURITOLOGY AS A MULTISPECIALITY THEME

František ŠKVRNDA

**Abstract:** The article is orientated on a contribution to creation of securitology as a science, which searches and resolves security issues in compact, complex and system way. It contents three areas of problems, which are important for a development of securitology. The first area is a new approach to security, which is the base for perception of security as social phenomena. The second area highlights a contemporary security in connection with a life in post-modern society on globalized world. The third area has practical orientation and embouchure - it is an introduction to a discussion about teaching of international security issues.

**Keywords:** securitology, new conception of security, international security, globalisation, postmodernity, teaching of international security.