

# CONTENTS

## 6. MECHANICS AND THERMODYNAMICS

PIV Measurement Inside the Elastic Tube during its Collapse.....	202
<i>J. Kolínský, J. Adamec</i>	

## 7. MECHANICAL ENGINEERING

The Influence of Conventional Welding Methods to Heat-Treatable Aluminium Alloys Type 6xxx.....	206
<i>L. Kolařík, M. Válová, K. Kovanda, J. Dunovský</i>	
Surface Integrity and Tribological Behaviour of Guide Gibs.....	208
<i>Z. Pala, N. Ganey, K. Kolařík</i>	
The Influence of Duplex Coating to Tool Steels Characteristics.....	210
<i>M. Válová, J. Suchánek</i>	
Problems of Self-Excited Vibrations During Milling Process.....	212
<i>P. Fojtů</i>	
Minimizing errors and irregularity of machine tool drives.....	214
<i>J. Moravec</i>	
Experimental and Computational Analyses Mechanisms and Driving Strings.....	216
<i>P. Karel, F. Starý, J. Mrázek, V. Dymybyl, P. Mossóczy</i>	
Applications of FEM to Optimizing of Machine Parts (Gear).....	218
<i>K. Petr, F. Starý, J. Mrázek, V. Dymybyl</i>	
Automated Laboratory Workplace for Research of Engineering Equipment Drives.....	220
<i>F. Starý, J. Mrázek, P. Mossóczy</i>	
Machinability of Titanium Alloys Using New Generation Cutting Tools.....	222
<i>J. Malý</i>	
Mixing of Suspensions.....	224
<i>D. Ceres</i>	
Audiovisual Support of the Experimental Measurement for the Lesson Learning.....	226
<i>J. Kalivoda, V. Míkula, P. Bauer, L. Phamová</i>	
Temperature Sensors Calibrating Facilities.....	228
<i>V. Vinš, M. Vitek, V. Vacek, M. Doubek, M. Janda</i>	
Microstructures and Grain Sizes of Magnesium Alloy AZ91HP.....	230
<i>M. Válová, B. Stunová</i>	

## 8. PRODUCTION SYSTEMS, TECHNOLOGY AND TECHNOLOGICAL PROCESSES AUTOMATISATION

Influence of Thermal Aging and Climatic Shocks on Soldered Joints .....	234
<i>M. Tučan</i>	
Comparative LCA Analysis of Compact Fluoreccent Lamp and Classical Light Bulb.....	236
<i>P. Rokos</i>	
Processing of reliability data sets containing extreme values.....	238
<i>P. Žák, I. Kudláček</i>	

## 9. ENERGETICS AND POWER ENGINEERING

Construction of Compact Matrix Converter with Nominal Power 20kW .....	242
<i>J. Bauer, J. Lettl</i>	
Buck Converter in AC Circuit.....	244
<i>M. Brejcha</i>	

## 10. NUCLEAR ENGINEERING

Radiological Characterization of radioactive waste .....	248
<i>V. Šidlová</i>	
Study of Thermal Effects on Low Power Research Reactors .....	250
<i>T. Bílý, L. Sklenka</i>	
Dosimetry in heavy ion beams with using of various detectors .....	252
<i>K. Brabcová</i>	

## 11. CHEMISTRY

Dissolution of ash materials from municipal solid waste incinerator and brown coal power plants .....	256
<i>H. Benešová, M. Keppert</i>	
Impact of Swimming Pool Operation to Stream.....	258
<i>B. Štátný, M. Slaviček, M. Janoušek</i>	
Measurement of Dynamic Salt Sorption in Porous Building Materials .....	260
<i>H. Benešová, M. Pavlíková</i>	

**12. BIOMEDICAL ENGINEERING**

Web-oriented system for integration of biomedical data .....	264
<i>V. Kokh</i>	
Interaction of Recombinant Interleukins IL-4 and IL-4 $\Delta$ 2 with IL-4R I and IL-4R II Receptors In Silico .....	266
<i>I. Ivlev</i>	
Comparison of Bactericidal Effects of Corona Discharges for Various Parameters .....	268
<i>V. Scholtz</i>	
Empirical Data Analysis in Clinical Stabilometry with White Noise Reflection .....	270
<i>M. Kopecký</i>	
Selected Methods for Automatical Classification of Psychophysiological States in Experimentally Controlled Psychological Load .....	272
<i>R. Kliment</i>	
The Persistence of Bactericidal Effects in Water After its Exposition to the Corona Discharge .....	274
<i>V. Scholtz</i>	
The Evolving of Bacterial Clone Resistant to the Low-Temperature Plasma .....	276
<i>V. Scholtz</i>	
Contribution to Advanced EEG Processing .....	278
<i>L. Lhotská, V. Gerla, V. Krajča, S. Petránek, V. Djordjevic</i>	
Wettability and photocatalytic properties of Titanium dioxide layers prepared by pulsed laser deposition at low temperatures .....	280
<i>J. Mikšovský</i>	
Mechanical Tests of Ultra-High Molecular Weight Polyethylene Used in Surgical Implants .....	282
<i>T. Bouda, P. Růžička, H. Chlup, S. Konvičková</i>	
Diagnostic Chain for Recording Luminescence Space Distribution .....	284
<i>P. Pršánek, J. Touš</i>	
The effect of the pulmonary diseases on the mechanical properties of the respiratory system .....	286
<i>Z. Horáková, M. Rožánek, K. Roubík</i>	
Implementation of Home Care Accessories for Android Operation System Based Devices .....	288
<i>L. Nestával</i>	
Research on Planar Applicators for Treating Cancer Diseases .....	290
<i>O. Rychlík</i>	
ITAREPS IQ: Module for prediction of schizophrenia .....	292
<i>J. Hrdlička</i>	

Algorithm development for correction of image deformations during acquisition of intrinsic optical signals.....	294
<i>E. Krajčovičová, M. Martinková, J. Otáhal, R. Konopková</i>	
Wavelet Transformation in Brain Evoked Potentials Processing.....	296
<i>E. Krajčovičová, M. Martinková, J. Otáhal, R. Konopková</i>	
Independent Component Analysis Based Single Cell Activity Discrimination Algorithm for Multielectrode Array Sensor Data .....	298
<i>J. Šedivý</i>	
Processing of EEG Sleep Recordings in Newborns .....	300
<i>L. Lhotská, V. Gerla, V. Djordjevic</i>	
A Novel Concept of the Database Systems in Medicine and Healthcare Course .....	302
<i>L. Lhotská, M. Burša, M. Huptych, V. Chudáček</i>	
Design of Tasks for Introduction to Biomedical Engineering Course .....	304
<i>L. Lhotská, M. Huptych</i>	
An e-learning Module of the Visualization Toolkit VTK .....	306
<i>L. Lhotská, M. Burša, J. Parák</i>	
Nature Inspired Clustering in the Electrocardiogram Interpretation Process in Cardiology .....	308
<i>L. Lhotská, M. Burša</i>	
Study of Gait Angles and Posture in Physiotherapy by Cyclograms and Methods of AI .....	310
<i>B. Farkašová, O. Hajný</i>	
European Marrow Donor Information System – Concept and Praxis .....	312
<i>L. Lhotská, D. Steiner</i>	
The Emotional States Classification based on the EEG.....	314
<i>L. Lhotská, V. Gerla, M. Vavrečka, M. Macaš</i>	
Study of Bio-compatible Materials using FTIR Spectroscopy .....	316
<i>M. Zezulová</i>	

### 13. CIVIL ENGINEERING

Technological instruction for control measurements of the highways .....	320
<i>J. Neumanová</i>	
The role of the Czech national long distances measuring standard Košnice for metrology and geodesy.....	322
<i>J. Kratochvíl</i>	
Strengthening of constructions .....	324
<i>R. Dlouhá, A. Menšík</i>	
Water reservoir – water quality influence .....	326
<i>F. Horký</i>	

Deconstruction of Structures under Sustainable Building Conditions .....	328
<i>E. Hlavová</i>	
Effect of Admixtures and Addition Agents on Physical-Mechanical and Chemical Characteristics of POPbeton® (Fly-Ash concrete).....	330
<i>R. Šulc</i>	
Analysis of Selected Deterioration Factors and its Effect on Physiomechanical Properties of Building Materials.....	332
<i>S. Neubergová</i>	
Determining the Sound Reduction Index of Structures in Special Cases.....	334
<i>J. Vychytil</i>	
Optimalisation of solar systems.....	336
<i>J. Ulč</i>	
Measurement and Interpretation of Thermal Fields in Concrete Bridge .....	338
<i>T. Klier</i>	
Hybrid Steel-Glass Beams.....	340
<i>M. Netušil</i>	
Influence of weathering processes on geotechnical properties of building rocks.....	342
<i>K. Kovářová</i>	
Hydraulic Capacity of Damaged Sewer Systems .....	344
<i>K. Kříž</i>	
System Development for the Location of Moving Object Based on GPS.....	346
<i>P. Bartošová</i>	
Application and Usability of Geospatial Data .....	348
<i>P. Voldán</i>	
Low Energy Solar School in Indian Himalayas.....	350
<i>J. Tilinger</i>	
The Energy Savings Possibilities in Cooling Systems.....	352
<i>E. Smažilová</i>	
Technical-Economic Benefits and their Potential .....	354
<i>L. Benešová</i>	
Numerical Modeling of Fluid-Structure Interaction .....	356
<i>D. Krybus, B. Patzák</i>	
Risk Management of Tunnel Projects .....	358
<i>O. Špačková</i>	
Experimental Investigation of Early Age Concrete .....	360
<i>P. Kalafutová</i>	
Load-Carrying Capacity and Rehabilitation of Existing Bridges .....	362
<i>J. Loško</i>	

Sediment assesment in small water reservoirs .....	364
<i>K. Lišková, K. Vrána</i>	
The Causes of Construction Failures – Structural Analysis.....	366
<i>M. Brouček, P. Kuklík, J. Sýkora</i>	
Calculation of close range photogrammetry for 3D scanning .....	368
<i>M. Štroner, R. Urban</i>	

#### 14. ARCHITECTURE AND TOWN PLANNING, GEODESY AND CARTOGRAPHY

The Influence of Social Model on the Form of Cities .....	372
<i>L. Slívová</i>	
Building of Visual Artists Association Mánes. Digitalization of Plans and Archival Documents .....	374
<i>A. Bičík</i>	
South Bohemia Exhibition In Tábor, 1929 – Professor Theodor Petřík And Tábor .....	376
<i>E. Hubičková</i>	
The impact of inner and urban environment on human mental status.....	378
<i>J. Jirátková</i>	
Participatory Process in Urban Design and Planning – Goals and Evaluation.....	380
<i>P. Klápště</i>	
Urban space - transformations and searching for identity .....	382
<i>Š. Vojtík</i>	
Development of Residential Building Typology under the Conditions of a Market Economy in the Czech Republic and the Netherlands. ....	384
<i>I. Boumová</i>	
The Liquid City.....	386
<i>J. Skoupy</i>	
Public Spaces in New Blocks of Houses .....	388
<i>A. Mocová</i>	
Analysis of the Original Copperplate Engravings of the Müller's Map of Bohemia.....	390
<i>J. Cajthaml</i>	
Testing of Leica HDS 3000 Distance Meter .....	392
<i>V. Smítka</i>	

**15. TRANSPORTATION, LOGISTICS, ECONOMY  
AND MANAGEMENT**

Differences between configurations of OLAP-based MIS for branches of fast moving consumer goods and job-order manufacture.....	396
<i>D. Michálek</i>	
The Best Practise in the Process Mapping Methodologies as a Tool for the Process Re-Engineering in the World.....	398
<i>Z. Němcová</i>	
E-learning as a Tool for More Efficient Higher Education.....	400
<i>P. Sládek</i>	
Identification and Analysis of Problems in the Application of Product Life Cycle Costing Method in the Construction Sector in the Czech Republic.....	402
<i>M. Nemeč</i>	
External Costs of Air Transport .....	404
<i>J. Hospodka</i>	
Contribution to the Recycling of Asphalt Mixtures in Plant.....	406
<i>F. Hanzík</i>	