



ENGINEERING MECHANICS 2004

NATIONAL CONFERENCE

with international participation

Svratka, Czech Republic, 10 - 13 May 2004

Editors: Igor Zolotarev and Alena Poživilová

organised by

Institute of Thermomechanics, Academy of Sciences of the Czech Republic

Institute of Solid Mechanics, Faculty of Mechanical Engineering, Technical University of Brno

Institute of Theoretical and Applied Mechanics, Academy of Sciences of the Czech Republic

ŽĎAS, a.s., Žďár nad Sázavou

Engineering Academy of the Czech Republic

Czech Society for Mechanics

Association for Engineering Mechanics

[List of papers ordered by author](#)

[List of papers ordered by section](#)

[List of authors](#)

click to select

[CD Info](#)



ENGINEERING MECHANICS 2004
NATIONAL CONFERENCE
with international participation
Svratka, Czech Republic, 10 - 13 May 2004

LIST OF CONTRIBUTIONS

(Alphabetic ordering according to the first author.)

- Alimov D., Petřík J., Šklíba J.**: Adjustment of the equilibrium position of the semiactively controlled suspension of the ambulance-couch, [Full text](#), [Abstract](#)
- Axman P., Florian Z.**: Proposal of electronically controlled moment screwdriver for drawing screws into bone tissue, [Full text](#), [Abstract](#)
- Ballo I., Chmúrny R.**: Optimisation of the parameters at the passage of the rotor through critical speed by means of proper tuning, [Full text](#), [Abstract](#)
- Bareš P., Kněsl Z.**: Analysis of a crack growing through an interface of two different materials based on crack tip opening displacement, [Full text](#), [Abstract](#)
- Bayer Z.**: Description of state behavior along the critical isotherm and along the saturation curve using simple equations of state. Part III, [Full text](#), [Abstract](#)
- Berjak J., Ondrušek Č., Druckmüller M.**: Automatic analyses and recognition of moving objects in the picture by method of phase correlation, [Full text](#), [Abstract](#)
- Bezdíček M., Grepl R., Švehlák M., Chmelíček J.**: Artificial neural network application to walk of a four legged robot, [Full text](#), [Abstract](#)
- Bezpalcová K., Jaňour Z., Jonáš P., Mazur O., Uruba V.**: Application of thermo-anemometer at physical modelling of pollutant diffusion in atmospheric boundary layer, [Full text](#), [Abstract](#)
- Blekta J., Mevald J.**: Dynamic effects analysis of tire models simulations, [Full text](#), [Abstract](#)
- Bouška P., Vokáč M., Záruba J., Štemberk P.**: Experimental investigation on basic mechanical properties of the sandstone masonry, [Full text](#), [Abstract](#)
- Brdečko L.**: Strain localization in structures under bending, [Full text](#), [Abstract](#)
- Brož P., Novotný R.**: Developing damage models for concrete, [Full text](#), [Abstract](#)



ENGINEERING MECHANICS 2004
NATIONAL CONFERENCE
with international participation
Svratka, Czech Republic, 10 - 13 May 2004

- Březina T., Turek M.: Use of continuous action reinforcement learning automata for asynchronous electromotor control, [Full text](#), [Abstract](#)
- Bubák A., Souček P.: The optimization of dynamic properties of ball screw feed drives, [Full text](#), [Abstract](#)
- Culek B., Culek B. ml., Podruh J., Kolář M.: Identification forces in contact wheel–rail, [Full text](#), [Abstract](#)
- Čapek L., Hruš T.: Uniaxial tension test of human skin in vivo, numerical model of skin and finite element modeling of human skin wounds closure, [Full text](#), [Abstract](#)
- Čech V., Jevický J.: The problem of the excitation functions generation for the model of the special positional servomechanism of the rangefinder, [Full text](#), [Abstract](#)
- Čižmár K., Starek L.: Forward damage detection method via genetic algorithms, [Full text](#), [Abstract](#)
- Čulík J., Mařík I.: Computer solving of spine deformation, [Full text](#), [Abstract](#)
- David J., Filip P.: On the choice of an adequate phenomenological model for viscoplastic fluids, [Full text](#), [Abstract](#)
- Dedouch K., Horáček J., Vampola T., Vokrál J.: Finite element modeling of male vocal tract acoustics considering cleft palate, [Full text](#), [Abstract](#)
- Doležal Z., Široká V.: Particularized modelling of operating loads of advanced straight teeth in spur gear mesh, [Full text](#), [Abstract](#)
- Dušek D., Pellant K.: Numerical simulation of the human cochlea, [Full text](#), [Abstract](#)
- Fiala Z.: Objective time derivative defined as covariant derivative, [Full text](#), [Abstract](#)
- Ficek F., Kadlec J.: Identification of cause for seizing the tool shifting table on a Closed - Die Forging Press, [Full text](#), [Abstract](#)
- Fischer C., Pospíšil S.: Interpretation of effective value of non-stationary building vibration, [Full text](#), [Abstract](#)
- Flizikowski J., Flizikowski A., Peszyński K.: The computer aided field modelling of multiple disc cutting grinders, [Full text](#), [Abstract](#)
- Flizikowski J., Peszyński K., Tomporowski A.: The cutting velocity model of multiple disc milling, [Full text](#), [Abstract](#)
- Franta L., Pražák J.: The problems of effective coefficient of static friction at friction surfaces of joint replacement, [Full text](#), [Abstract](#)
- Frantík P.: Frequency analysis of free vibrations of the beam in postcritical state, [Full text](#), [Abstract](#)
- Fridrich F.: Constrained identification of constants in polynomial models of hyperelastic materials, [Full text](#), [Abstract](#)



ENGINEERING MECHANICS 2004
NATIONAL CONFERENCE
with international participation
Svratka, Czech Republic, 10 - 13 May 2004

Fridrich F., Menčík J.: Response of a harmonically excited component fixed to a rubber mount – influence of the rubber mount properties random variability,

[Full text](#), [Abstract](#)

Frýba L.: Vibration of bridges under high speed trains, [Full text](#), [Abstract](#)

Frydryšek K., Fuxa J., Fusek M.: Complex solutions of material tests, [Full text](#), [Abstract](#)

Fuis V.: Failure probability of the ceramic component with measured shape deflection of the contact cones for the random position against the counterpart, [Full text](#), [Abstract](#)

Fuxa J., Kubala R., Frydryšek K., Fojtík F., Fusek M., Halama R., Rojíček R.: Fatigue strength criterion fit for proportional loaded material, [Full text](#), [Abstract](#)

Grepel R., Ondrušek Č., Kratochvíl C.: Use of complex dynamic models in design and control of walking robots, [Full text](#), [Abstract](#)

Grepel R., Věchet S., Bezdiček M., Švehlák M., Chmelíček J.: Control of experimental walking robot using simulating model, [Full text](#), [Abstract](#)

Hajžman M., Polach P.: Hydraulic shock absorbers modelling in trolleybus multibody simulations of running over a large road unevenness, [Full text](#), [Abstract](#)

Halama R., Lenert J.: Computing technique in contact fatigue, [Full text](#), [Abstract](#)

Hlaváček M.: Contact of cylindrical surfaces with elastic incompressible coatings, [Full text](#), [Abstract](#)

Horáček J., Veselý J., Pešek L., Ružička P.: Experimental acoustic modal analysis of a male vocal tract model, [Full text](#), [Abstract](#)

Hortel M., Škudrová A.: To influence of gear backlash and damping in tooth space on dynamics of nonlinear parametric systems with kinematic couplings, [Full text](#), [Abstract](#)

Hoření B., Chára Z.: Experimental and numerical modelling of flow around the obstacles placed on a channel bottom, [Full text](#), [Abstract](#)

Houfek L., Hlavová P., Houfek M.: Design of bearing from measured data, [Full text](#), [Abstract](#)

Houška P., Singule V., Březina T., Ehrenberger Z.: Control of dynamic stability of moving the four-legged walking robot, [Full text](#), [Abstract](#)

Hračov S.: Influence of nonproportional damping on free vibration of slender structures, [Full text](#), [Abstract](#)

Hrubý J.: A thermodynamic model of supercooled water, [Full text](#), [Abstract](#)

Chlup H., Konvičková S.: Evolution of the mock-line of cardiovascular system circuit, [Full text](#), [Abstract](#)



ENGINEERING MECHANICS 2004
NATIONAL CONFERENCE
with international participation
Svratka, Czech Republic, 10 - 13 May 2004

Chmelíček J., Grepl R., Bezdíček M., Švehlák M.: Collision states detection for quadruped robot motion, [Full text](#), [Abstract](#)

Iwaszko J.: Gears manufacturing and meshing – a didactic poster, [Full text](#), [Abstract](#)

Jaitner A.: Design and computation the box of hydraulic scrap shear CNS 320 K, [Full text](#), [Abstract](#)

Jirouš F.: Optimization of steam boiler pipe system, [Full text](#), [Abstract](#)

Jiroušek O., Jírová J., Máca J.: Use of X-ray computed tomography for construction of FE models of bones, [Full text](#), [Abstract](#)

Jonáš P., Mazur O., Řehák V., Uruba V.: Preliminary results on the mean flow characteristics of the wet steam downstream the LP stage of a 210MW turbine, [Full text](#), [Abstract](#)

Keršner Z., Náhlík L., Kněsl Z.: Interaction of crack and aggregate in concrete, [Full text](#), [Abstract](#)

Klusák J., Kněsl Z.: Stress singularity analysis of bodies with a bi-material notch, [Full text](#), [Abstract](#)

Kolisch M., Šejnoha J.: Risk analysis of high rise buildings, [Full text](#), [Abstract](#)

Korouš J., Masák J.: Stochastic simulation of creep crack growth in test specimens, [Full text](#), [Abstract](#)

Koudelka P.: Peculiarities of the limit state design theory in geotechnics, [Full text](#), [Abstract](#)

Koudelka T., Kuklík P., Koudelka P.: Numerical solution of lateral earth pressures – elastic-plastic solution using FEM and solution using GLPT theory, [Full text](#), [Abstract](#)

Kozánek J.: Approximate computations of pseudospectra, [Full text](#), [Abstract](#)

Kozel K., Louda P., Příhoda J.: Numerical modeling of turbulent flow through a turbine cascade, [Full text](#), [Abstract](#)

Kratochvíl C., Grepl R.: Modelling of electromechanical drive system failures, [Full text](#), [Abstract](#)

Kratochvíl C., Laryš F.: The decade of the national conference Engineering Mechanics, [Full text](#), [Abstract](#)

Krček P., Dvořák J.: Mobile robot motion control by means of fuzzy rules, [Full text](#), [Abstract](#)

Krejsa J., Grepl R., Věchet S.: Approximation of walking robot stability model, [Full text](#), [Abstract](#)

Kruis J., Vondráček R., Bittnar Z.: Domain decomposition method with sparse direct solver, [Full text](#), [Abstract](#)



ENGINEERING MECHANICS 2004
NATIONAL CONFERENCE
with international participation
Svratka, Czech Republic, 10 - 13 May 2004

- Křiváková J.**: Response of thin cylindrical water filled tank to the impact of pipe element, [Full text](#), [Abstract](#)
- Lata M.**: Dynamic action at electric locomotion drive system at rise of slip of wheelset, [Full text](#), [Abstract](#)
- Lebiš R., Burša J., Hayashi K.**: Constitutive model of vascular smooth muscle cells determined using computational simulation, [Full text](#), [Abstract](#)
- Lukerchenko N., Kvurt Yu., Chára Z., Vlasák P.**: Experimental evaluation of drag rotation coefficient of the spherical particle, [Full text](#), [Abstract](#)
- Macák P., Pechmannová E.**: Life exhaustion assessment of pressure vessel of the reactor WWER 1000, [Full text](#), [Abstract](#)
- Macura P., Fiala A.**: The research of residual stress reductions at products, [Full text](#), [Abstract](#)
- Makovička D., Makovička D.**: Dynamic response of building from groundborne vibration loading, [Full text](#), [Abstract](#)
- Marada T., Březina T., Singule V.**: Determination of Q-function optimum grid applied on asynchronous electric motor control task, [Full text](#), [Abstract](#)
- Markov P.**: Analysis of seismic resistance of nuclear reactors WWER 440/V230 internals, [Full text](#), [Abstract](#)
- Maxa J., Horák V.**: Shock wave in two-phase fluid, [Full text](#), [Abstract](#)
- Medúna O., Čapek L., Hruš T.**: Reconstruction of 3D model of the first cervical vertebra, [Full text](#), [Abstract](#)
- Menčík J., Fridrich F.**: Reliability analysis and optimisation of components with random input variables, [Full text](#), [Abstract](#)
- Menčík J., Rauchs G., Belouettar S., Bardon J., Riche A.**: Modeling of response of viscoelastic materials to harmonic loading, [Full text](#), [Abstract](#)
- Morávka Š., Voldřich J.**: Application the "impact-echo" method to the concrete structure diagnostic in NPP building, [Full text](#), [Abstract](#)
- Moryń-Kucharczyk E., Jonáš P., Mazur O., Uruba V.**: Application of hot-wire anemometry in a wind tunnel modelling of gaseous pollutants spreading, [Full text](#), [Abstract](#)
- Mrázek P.**: Simulation of control mechanism for change of the stitch density of knitted fabric, [Full text](#), [Abstract](#)
- Mudrik J.**: The effect of electric drive parameters on vibrations in machine aggregate, [Full text](#), [Abstract](#)
- Muller J., Malenovský E., Pochylý F.**: The computational modeling of the dynamical properties of the Laval's rotor with the squeeze film damper using the database of additional effects, [Full text](#), [Abstract](#)
- Musil M.**: Iterative model correction based on transfer function, [Full text](#), [Abstract](#)



ENGINEERING MECHANICS 2004
NATIONAL CONFERENCE
with international participation
Svratka, Czech Republic, 10 - 13 May 2004

- Nad' M.**: Influence of the pre-stressed areas on circular disc vibrations, [Full text](#), [Abstract](#)
- Nam T. H., Marvalová B.**: Large deformation analysis of inflated air-spring shell by the finite element method, [Full text](#), [Abstract](#)
- Nánási T.**: Relations between frequency equations of beams, [Full text](#), [Abstract](#)
- Náprstek J.**: Probability density assessment of a linear system due to polynomial of the normal noise, [Full text](#), [Abstract](#)
- Němeček R., Pražák J.**: Thermal aspects of friction in joint replacements, [Full text](#), [Abstract](#)
- Neumann V.**: Analysis of dynamic stress of planetary transmissions, [Full text](#), [Abstract](#)
- Novák J., Šejnoha J.**: Two scale modeling of masonry, [Full text](#), [Abstract](#)
- Novák L.**: Specimen preparation for microscopic image analysis of engineered cementitious composites, [Full text](#), [Abstract](#)
- Novotný C., Španiel M.**: Determination of limit pressure of pipeline with defect by energetic criterion, [Full text](#), [Abstract](#)
- Novotný J., Novotný J. jun.**: Modelling of structures with moving loads, [Full text](#), [Abstract](#)
- Novotný L.**: Floating system in the machine tools drives, [Full text](#), [Abstract](#)
- Novotný R., Brož P.**: Anisotropic models of helical type for thin-walled circural cylindrical shells in membrane condition, [Full text](#), [Abstract](#)
- Ondrouč J., Kaňák J.**: The problematics of acoustic power determination of flat sources in straitened areas, [Full text](#), [Abstract](#)
- Pásek M., Christé G., Šimurda J.**: Ionic concentration changes in the tubular system of rat ventricular cardiac cell model, [Full text](#), [Abstract](#)
- Pečínka L.**: Dynamic response of the Lagrange and Timoshenko beam on the moving load, [Full text](#), [Abstract](#)
- Pellant K., Dušek D., Mejzlík J.**: Modeling of the influence of middle ear prosthesis on hearing, [Full text](#), [Abstract](#)
- Pešek L., Půst L., Vaněk F.**: Thermomechanical processes in compliant damping elements, [Full text](#), [Abstract](#)
- Petruška J., Skalka P., Janiček L., Rusz R.**: Computational simulation of cold forming of bolts and prediction of material damage during the process, [Full text](#), [Abstract](#)
- Podruh J., Culek B.**: Contact static analyse of wheel and rail by FEM, [Full text](#), [Abstract](#)
- Potěšil A., Cvejn J.**: Design and optimization of external plastic panels of vehicles, [Full text](#), [Abstract](#)



ENGINEERING MECHANICS 2004
NATIONAL CONFERENCE
with international participation
Svratka, Czech Republic, 10 - 13 May 2004

- Poživilová A., Plešek J.**: Modelling of the torsion and combined elongation-torsion tests of hyperelastic cylinders, [Full text](#), [Abstract](#)
- Profant T., Kotoul M.**: The straight path stability of an array of collinear micro-cracks interacting with an array of circular inclusions, [Full text](#), [Abstract](#)
- Prokeš M.**: Isostatic presses as an equipment for omnidirectional pressing process, [Full text](#), [Abstract](#)
- Přikryl K., Mišun V.**: Computational simulation of forced oscillation of the vocal folds in 3D space, [Full text](#), [Abstract](#)
- Pták S., Okrouhlík M., Trnka J.**: Assessment of experiment reproducibility by finite element analysis, [Full text](#), [Abstract](#)
- Pustka D., Marek P.**: SBRA method vs. Eurocode-reliability assessment of a steel structure, [Full text](#), [Abstract](#)
- Rak V., Malenovský E., Pochylý F.**: Static analysis of long and short journal bearings, [Full text](#), [Abstract](#)
- Rozehnal D.**: Wind tunnel testing of stationary and nonstationary aerodynamic characteristics of the airfoil, [Full text](#), [Abstract](#)
- Ryšavý P., Burša J., Lebiš R.**: Stress-strain analysis of surgical connection between two aortic parts with different geometry, [Full text](#), [Abstract](#)
- Salajka V., Kanický V.**: Impacts computer simulation using LS-DYNA program, [Full text](#), [Abstract](#)
- Sedláček R., Rosenkrancová J.**: The influence of DLC surface coat on abrasion of UHMWPE, [Full text](#), [Abstract](#)
- Soldát J.**: Analysis and compensation thermal errors of machine tools, [Full text](#), [Abstract](#)
- Straka J., Ficek F.**: Cutting quality improvement on cross cutting shears, [Full text](#), [Abstract](#)
- Svoboda J., Balda M., Fröhlich V.**: Fatigue strength and life of real structures under combined random loading, [Full text](#), [Abstract](#)
- Szabó Š., Knoflíček R.**: VUTBOT 2 mobile robot undercarriage kinematics and submodules of its multiprocessor control system, [Full text](#), [Abstract](#)
- Šeda M.**: Robot navigation using Voronoi diagrams, [Full text](#), [Abstract](#)
- Šimek J.**: Some specific features of the rotor dynamic behaviour, [Full text](#), [Abstract](#)
- Šklíba J., Prokop J., Barbora J.**: About the dependence of the natural frequencies of a vibroisolation system on the load magnitude and position, [Full text](#), [Abstract](#)
- Šlechtová M., Kočiš J., Florian Z., Návrat T.**: Computational and experimental modelling of the backbone element with applied fixator, [Full text](#), [Abstract](#)
- Šmilauer V., Máca J., Valášek M.**: Dynamic bridge response for truck with controlled suspensions, [Full text](#), [Abstract](#)



ENGINEERING MECHANICS 2004
NATIONAL CONFERENCE
with international participation
Svratka, Czech Republic, 10 - 13 May 2004

- Španiel M., Diviš M., Tichánek R.: Thermal loading of stationary engine cylinder head, [Full text](#), [Abstract](#)
- Štemberk P., Kruis J.: Heat transfer with fuzzy coefficients, [Full text](#), [Abstract](#)
- Štigler J.: Mathematical model of the T-part for unsteady uncompressible fluid flow, the equivalent length setting, [Full text](#), [Abstract](#)
- Šulc J., Lichtneger P., Zubík P.: Flow parameters measurement in the channel with the negative step, [Full text](#), [Abstract](#)
- Švancara P.: Statistical and sensitivity analysis of determination of SEA coupling loss factors using a dual modal formulation, [Full text](#), [Abstract](#)
- Švehlák M., Grepl R., Věchet S., Bezdíček M., Chmelíček J.: Design of small laboratory quadruped robot, [Full text](#), [Abstract](#)
- Tajč L., Rudas B.: New possibilities of labyrinth seals steam flow limitation, [Full text](#), [Abstract](#)
- Trávníček Z., Hrubý J., Vogel J.: Visualization and numerical study of confined coaxial jets, [Full text](#), [Abstract](#)
- Tůma J.: Envelope of modulated harmonic components extraction from noise and vibration signals, [Full text](#), [Abstract](#)
- Uruba V.: Flow control using synthetic jet actuators, [Full text](#), [Abstract](#)
- Uruba V., Jonáš P., Mazur O., Řehák V.: Occurrence of big droplets in the vicinity of the last stage of a 210MW steam turbine, [Full text](#), [Abstract](#)
- Valenta R.: Numerical implementation of the Leonov model, [Full text](#), [Abstract](#)
- Vavřík D., Jakubek J.: Experimental-numerical evaluation of the surface plastic strain evolution, [Full text](#), [Abstract](#)
- Věchet S., Krejsa J., Miček P.: Continuous Q-learning application, [Full text](#), [Abstract](#)
- Vimr J., Švígler J.: Analysis of the compressible viscous fluid flow through the gap caused by the incorrect contact of screw surfaces, [Full text](#), [Abstract](#)
- Vítěk K., Doubrava K., Holý S., Kolman R., Mareš T., Španiel M.: Original theory of the residual stress identification using the hole-drilling method, [Full text](#), [Abstract](#)
- Vítěk T., Havlena V.: Application of nonlinear data reconciliation method for steam generators data, [Full text](#), [Abstract](#)
- Vlach R., Ondrůšek Č.: Computational and experimental modeling of synchronous generator fan, [Full text](#), [Abstract](#)
- Vlach R., Ondrůšek Č.: Cooling of synchronous machine winding using heat pipe, [Full text](#), [Abstract](#)
- Vlasák P., Chára Z., Konfršt J.: Conveying of coarse particle in non-Newtonian slurry, [Full text](#), [Abstract](#)



ENGINEERING MECHANICS 2004
NATIONAL CONFERENCE
with international participation
Svratka, Czech Republic, 10 - 13 May 2004

Vokrál J., Horáček J., Černý L., Veselý J.: Scull vibrations and own voice perception, [Full text](#), [Abstract](#)

Voldřich J., Morávka Š.: Effect of surface layers on the propensity of disk brakes to frictionally excited thermoelastic instability during extreme braking, [Full text](#), [Abstract](#)

Volek J., Soukup J., Skočilasová B.: Investigation of influence of assymetry in the case of vibration of resiliently supported and coupled three rigid plates - application on the vehicle vibrations I, [Full text](#), [Abstract](#)

Volek J., Soukup J., Šimsová J.: Transversale impact of elastic rod on thin elastic orthotropic rectangular plate II (Flügge's and Timoshenko-Mindlin's models), [Full text](#), [Abstract](#)

Vysloužil T., Kotoul M.: FEM computation of stress intensity factor for the chevron notch specimen under 3-point bending, [Full text](#), [Abstract](#)

Vyšín M.: Hybrid architectures of mobile robots, [Full text](#), [Abstract](#)

Wierer M.: Buckling and wrinkling of compressed sandwich beams, [Full text](#), [Abstract](#)

Zapoměl J.: Incorporation of a vapour cavitation in short lemon hydrodynamical bearings with deep a central groove into computational models of rotor systems - response on unbalance excitation, [Full text](#), [Abstract](#)

Záruba J., Štemberk P., Bouška P., Vokáč M.: Exploitation of laser levelling device for estimation of bridges deflection, [Full text](#), [Abstract](#)

Zeman V., Hajžman M., Byrtus M.: Methodology of the gear transmission optimization from the constant gear mesh point of view, [Full text](#), [Abstract](#)

Zolotarev I.: About stability an aeroelastic system, [Full text](#), [Abstract](#)

Zubík P., Šulc J.: Flow parameters measurement in the curved diffuser of the rectangular cross-section, [Full text](#), [Abstract](#)