

ENGINEERING MECHANICS 2013

**19th INTERNATIONAL CONFERENCE
MAY 13-16, 2013, SVRATKA, CZECH REPUBLIC**



PROGRAMME OF THE CONFERENCE

Association for Engineering Mechanics

**Institute of Theoretical and Applied Mechanics,
Academy of Sciences of the Czech Republic, v.v.i.**

**Institute of Thermomechanics,
Academy of Sciences of the Czech Republic, v.v.i.**

**Institute of Solid Mechanics, Mechatronics and Biomechanics,
Faculty of Mechanical Engineering, Brno Technical University**

ŽDAS, a.s., Žd'ár nad Sázavou

Czech Society for Mechanics

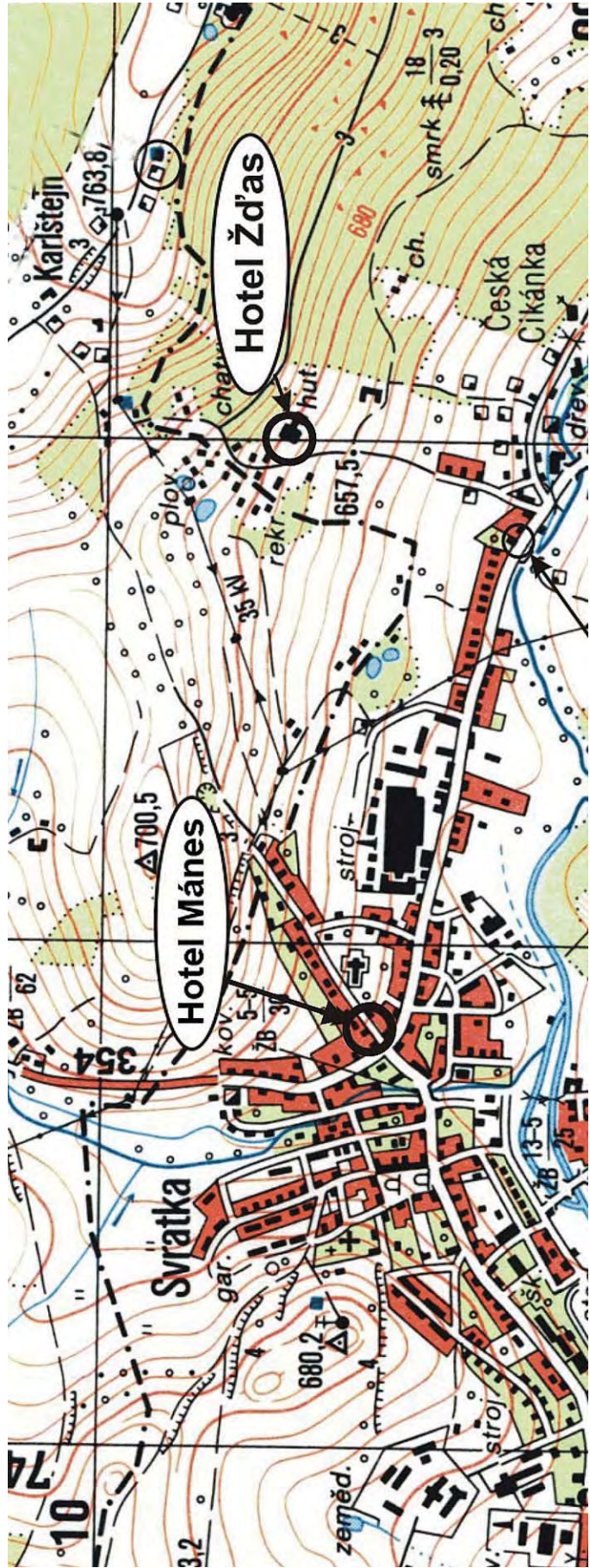


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Prof. Milan Žmindák, PhD.	University of Žilina, SK

1. GENERAL INFORMATION

VENUE

The EM2013 Conference is held in the hotel ŽĎAS. Address :

Hotel ŽĎAS
Na Vyhlídce 41,
592 02 Svatka
Czech Republic
www.hotel-svatka.cz

hotel reception and Registration Desk:
Tel. : + 420.566 662 611
Fax : +420.566 662 418
e-mail: info@hotel-svatka.cz

ACCOMMODATION

Accommodation has been reserved in the hotel ŽĎAS. To serve all the participants, places in other near facilities have also been reserved, see the map. **For information regarding your individual reservation, please contact kindly the reception of the hotel ŽĎAS immediately after your arrival at Svatka.**

Breakfast is served for participants in the hotel they are living (ŽĎAS or Mánes) 7:15-8:30 a.m. All other meal (lunch, dinner, coffee refreshment) is served (wherever accommodated) in the hotel ŽĎAS only.

• hotel ŽĎAS	see above	manager: Ing. Matúš Molčan mobil: +420.602 705 412 e-mail: matus.molcan@zdas.cz
• hotel Mánes	Čsl. armády 303, 592 02 Svatka www.hotel-manes-svatka.cz e-mail: info@hotel-manes-svatka.cz	manager: Mr. František Černý mobil +420.603 287 845

TRANSPORTATION

Connection to Žďár nad Sázavou on Monday, 13.5.2013 (see <http://vlak-bus.cz>)

Brno hl.n.	12:20	Žďár n.Sázavou	13:30	Train R 678
Brno,ÚAN Zvonařka	12:30	Žďár n.Sáz., aut.nádr.	14:14	Bus 840123 goes on wkds
Praha hl.n.	10:05	Žďár n.Sázavou	12:28	Train R 679
Praha hl.n.	12:05	Žďár n.Sázavou	14:29	Train R 681

Connection from Žďár nad Sázavou on Thursday, 16.5.2013 (see <http://vlak-bus.cz>)

Žďár n.Sázavou	13:32	Praha hl.n.	15:54	Train R 678
Žďár n.Sázavou	14:32	Brno hl.n.	15:42	Train R 681
Žďár n.Sáz., aut.nádr.	14:35	Brno,ÚAN Zvonařka	16:15	Bus 840123 51 goes on wkds
Žďár n.Sázavou	15:32	Praha hl.n.	17:54	Train R 680
Žďár n.Sázavou	15:37	Brno hl.n.	17:37	Os 4605/4629
Žďár n.Sázavou	16:32	Brno hl.n.	17:42	Train R 683

Transportation from Žďár nad Sázavou to Svatka and back (travel time 30 min.):

- A special coach to Svatka (hotel ŽĎAS - Conference venue) will be leaving Žďár nad Sázavou (bus station in front of the railway station) at 14:30 on 14 May (Monday) 2013.
- A special coach to Žďár nad Sázavou (bus & railway station) will be leaving Svatka (hotel ŽĎAS) approximately at 13:30 on 17 May (Thursday) 2013.

A public bus is operating between Žďár nad Sázavou (bus & railway station) and Svatka (main bus stop at Svatka), fare CZK 34,-. Weekdays:

Žďár nad Sázavou	↓	6:05	8:00	10:05	11:15	13:00	14:25	14:45	16:10	17:20	18:35
Svatka	↓	6:50	8:45	10:50	12:00	13:45	15:10	15:30	16:55	18:04	19:20
Svatka	↓	6:30	6:55	7:15	9:15	12:40	13:55		17:15		
Žďár nad Sázavou	↓	7:15	7:40	8:00	10:00	13:25	14:40		18:00		

INTERNET SERVICES

During the whole Conference internet services will be available in the hotel Žďas. Four PCs will be at disposal to the participants in the hotel lobby, as well as the WIFI coverage of the whole building.

In the same time, the PCs mentioned above will be able to browse among the EM2013 CD ROM and to read the full text version of papers.

CONFERENCE REGISTRATION

The Registration Desk of the EM2013 Conference is located in the lobby of the hotel ŽĎAS. It is open from 12:00 to 19:00 on Monday 13 May 2013, from 8:00 to 18:00 on Tuesday and from 8:00 to 12:00 on Wednesday and Thursday. Accommodation is provided by the hotel ŽĎAS reception. For information regarding other hotel ŽĎAS services, please contact hotel reception (swimming pool, golf concourse, etc.).

BOARDING

Breakfast is served for participants in the hotel they are living in (ŽĎAS or Mánes) 7:15-8:30 a.m. Lunches and Dinners are served in the Restaurant of the hotel ŽĎAS only (Lunches 12:15 – 14:00; Dinners at 18:30). As the capacity of the restaurant is limited, it is recommended to eat in two groups. The visible conference badge is a sign for the staff to serve you.

REFRESHMENT

Coffee, mineral water and other refreshment are available in the bar of the hotel ŽĎAS (10:00 – 24:00). For other possibilities, please kindly contact the staff of the hotel ŽĎAS.

BADGES

The participants are kindly requested to wear their badges during the conference to be admitted to scientific sessions, breakfasts, lunches, dinners, transportation and other services.

OFFICIAL LANGUAGE

The official languages of the conference are Czech, Slovak and English. No simultaneous translation is provided.

INSURANCE

The Conference Committee is not responsible for the health problems of the participants nor for losses. The visitors from abroad are recommended to take out insurance in the country of their origin.

2. SCIENTIFIC INFORMATION

The **ENGINEERING MECHANICS 2013** - International Conference continues in the tradition of the fruitful meetings which have been held in Svratka for many years.

The Programme Committee has chosen 85 papers for the presentation (74 lectures and 11 posters) at the conference while the keynote speakers were invited to cover the particular subjects of the engineering mechanics. All accepted papers are published in Conference Proceedings consisting of two parts:

- The Book of Extended Abstracts, printed by Libertas, a.s. Semily, including 200 pgs.
- CD ROM containing Full Text version as well as Extended Abstracts of papers.

For every corresponding author 5 off-prints of his paper full text are available at the Registration Desk. Feel free to make any arbitrary number of additional copies.

LECTURES

The conference includes the keynote lectures (plenary session) and parallel sessions in the **Lecture Halls I, II, III, IV, V** located in main building of the hotel ŽĎAS. The popular names of these halls, mostly used in the past, are: **Conference Room - L.H. I** (next-door the Restaurant), **Coffee Bar-L.H. II** (behind the Restaurant), **Fitness Centre – L.H. III** (basement, next door the Wine Cellar), **Wine Cellar– L.H. IV** and **TV Club – L.H. V** (next the Registration Desk).

The presentation of a keynote lecture lasts 60 minutes while that one of a normal lecture 25 minutes including the discussion. The Chairmen of scientific sessions are responsible for keeping the timetable. The presenting authors are kindly asked to contact their Section Chairman 10 minutes before starting of the session and to check functionality of their presentation.

The data projector (1024*768) with PC is available in all lecture halls as a standard. No other facilities will be provided, unless the speaker employs its own device – please contact the Secretariat of the Conference. A technician will assist in each of the lecture halls during the whole Conference.

POSTER SESSION

For the poster session the area in **TV Club – L.H. V** is reserved starting Tuesday 16:00. For every paper announced for the poster session a particular panel of 0,95 x 1,35 m (h x w) is reserved. Presenting authors are entitled to mount their posters since Tuesday 16:00. Some fixing material will be available at the place and at the Registration Desk.

All of the posters exhibited at the Conference will be accepted into the competition for the **Prize of the Managing Director of the ŽĎAS Company**.

The special committee – under chairmanship of Mr. Ivan Trajtel', MSc., technical director of the ŽĎAS company – will conclude the assessment of the posters exhibited on Wednesday at 13:30. The winners of the competition will be announced and awarded on Wednesday evening at 19:00 before the Conference Dinner. The authors are asked to dismount kindly their posters by Wednesday evening.

VARIATIONS

The Scientific Committee is entitled to vary the programme if necessary for scientific or technical reasons. If a speaker is missing in the planned time the next speakers take the order and the break after that particular session will be longer.

TECHNICAL EXHIBITIONS

The experimental equipments, instruments, hardware and software relating to engineering mechanics are exposed in the lobby of the hotel ŽDAS.

MEETING OF THE SCIENTIFIC COMMITTEE

The members of the Scientific Committee are invited to a working meeting (Wednesday 15 May, 13:00 – 15:00, VIP-room). The results of the meeting will be announced at the plenary session closing the Conference on Thursday 16 May 2013 at 12:00.

CONTACT ADDRESS OF THE ENGINEERING MECHANICS 2013 (not during the conference)

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LIST OF SECTIONS

Section	Abbreviation	Lecture Hall
Keynote Lectures	<i>KEY</i>	Lecture Hall I - Conference Room
Dynamics	<i>DYN</i>	
Fluid Mechanics	<i>FLU</i>	
Biomechanics namics	<i>BIO</i>	Lecture Hall II - Coffee Bar
Termody	<i>TER</i>	
Fracture Mechanics	<i>FRA</i>	
Mechanics of Solids	<i>SOL</i>	
Historical Structures	<i>HIS</i>	Lecture Hall III - Fitness Centre
Mechatronics	<i>MCT</i>	
Reliability of Structures	<i>REL</i>	Lecture Hall IV - Wine Cellar
Poster Session	<i>POS</i>	Lecture Hall V - TV Club

3. CONFERENCE TIMETABLE

Monday – 13 May 2013

	Hotel lobby
12:00 - 18:30	Registration of participants
Plenary session	Lecture Hall I (Conference Room)
16:00 - 16:30	Opening ceremony
16:30 - 18:00	Keynote lectures
18:30	Dinner - Restaurant

Tuesday - 14 May 2013

Parallel sessions	Lect. Hall I	Lect. Hall II	Lect. Hall III	Lect. Hall IV	Lect. Hall V	Hotel lobby
9:00 - 10:15	<i>DYN</i>	<i>FLU</i>	<i>SOL</i>	<i>REL</i>		Registration of Participants (Hotel lobby)
10:15 - 11:00	Coffee Break					8:00 - 18:00
11:00 - 12:15	<i>DYN</i>	<i>FLU</i>	<i>SOL</i>			Technical Exhibitions (Hotel lobby)
12:15 - 14:00	Lunch - Restaurant					8:00 - 18:00
14:00 - 15:15	<i>DYN</i>	<i>BIO</i>	<i>SOL</i>		<i>POS</i>	IFTtoMM meeting (VIP-room)
15:15 - 16:00	Coffee Break					13:00 - 14:00
16:00 - 17:40	<i>DYN</i>	<i>BIO/TER</i>	<i>SOL</i>		<i>POS</i>	Poster Session (TV Club)
18:30	Dinner - Restaurant					14:00 - 18:00
	Lecture Hall I					
19:30	Společenské setkání: Stanislav Růžička: <i>Putování za Santinim a jeho inženýrskými stavbami</i>					

Wednesday – 15 May 2013

Parallel sessions 9:00 - 10:15	Lect. Hall I	Lect. Hall II	Lect. Hall III	Lect. Hall IV	Lect. Hall V	Hotel lobby
	<i>DYN</i>	<i>FLU</i>	<i>SOL</i>		<i>POS</i>	Registration of Participants (Hotel lobby)
10:15 – 11:00	C o f f e e B r e a k					8:00 – 12:00
Parallel sessions 11:00 – 12:15	Lect. Hall I	Lect. Hall II	Lect. Hall III	Lect. Hall IV	Lect. Hall V	Technical Exhibitions (Hotel lobby)
	<i>DYN</i>	<i>FLU</i>	<i>SOL</i>		<i>POS</i>	
12:15 - 14:00	L u n c h - R e s t a u r a n t					8:00 – 18:00
14:00 - 19:00	F r e e t i m e					Poster Session (TV Club)
						8:00 – 19:00
19:00 - 24:00 19:00	C o n f e r e n c e D i n n e r - R e s t a u r a n t ; Announcement of the Poster Session winner					Scientific Committee meeting (VIP-room)
						13:00 – 15:00

Thursday – 16 May 2013

Parallel sessions 9:00 - 10:15	Lect. Hall I	Lect. Hall II	Lect. Hall III	Lect. Hall IV	Lect. Hall V	Hotel lobby
	<i>DYN</i>	<i>FRA</i>	<i>SOL</i>			Registration of Participants (Hotel lobby)
10:15 - 11:00	C o f f e e B r e a k					8:00 – 12:00
Parallel sessions 11:00 - 11:50	Lect. Hall I	Lect. Hall II	Lect. Hall III	Lect. Hall IV	Lect. Hall V	
	<i>DYN</i>	<i>FRA</i>	<i>HIS/MCT</i>			
11:50 - 13:30	C l o s i n g i n f o r m a t i o n a n d L u n c h - R e s t a u r a n t					

4. PROGRAMME OF THE PRESENTATIONS

Monday – 13 May 2013 – Restaurant

16:00 –16:30 ***Opening Ceremony – Plenary session***

16:30 - 18:00 ***Keynote lectures – Plenary session (KEY)***

chairmen: J. Petruška

16:30

Tesař V.:

3

***FLUIDICS: WHAT IT IS, WHERE IT IS HEADING
- AND HOW IT WILL CHANGE THE WORLD WE LIVE IN***

18:30

Dinner - Restaurant

4.1. Lecture Hall I
(Conference Room – next-door the Restaurant)

Detailed Programme

Dynamics

(DYN)

Tuesday – 14 May 2013 – Lecture Hall I

9:00 – 12:15 Dynamics chairmen: Horáček J. & Zeman V. (DYN)

9:00	Guran A.: STRUCTURAL ANALYSIS OF THE TALLEST PURE-BRICK TOWER IN THE WORLD	47
9:25	Zinkovskii A.P., Tsymbalyuk V.A.: EXPERIMENTAL-AND-COMPUTATIONAL PREDICTION OF AEROELASTIC STABILITY IN BLADE ASSEMBLIES AGAINST SUBSONIC FLUTTER	175
9:50	Stein G. J., Chmúrny R.: DAMPING OF BEAM TRANSVERSAL VIBRATIONS BY A PERMANENT MAGNET WITH COIL	143

10:15 – 11:00 Coffee Break – hotel lobby

11:00	Půst L., Pešek L.: MODEL OF TURBINE BLADES BUNDLES	125
11:25	Vlček V., Zolotarev I., Kozánek J.: UNSTEADY AERODYNAMIC FORCES MEASURED ON A FLUTTERING PROFILE	167
11:50	Zapoměl J., Kozánek J., Ferfecki P.: THE STABILITY INVESTIGATION OF VIBRATIONS OF FLEXIBLY SUPPORTED RIGID ROTORS DAMPED BY HYBRID MAGNETORHEOLOGICAL DAMPING ELEMENTS	171

12:15 – 14:00 L u n c h - Restaurant

14:00 – 17:40 Dynamics chairmen: Žmindač M. & Kozánek J. (DYN)

14:00	Náprstek J., Fischer C.: DYNAMIC RESPONSE OF A HEAVY BALL ROLLING INSIDE A SPHERICAL DISH UNDER EXTERNAL EXCITATION	103
14:25	Zeman V., Hlaváč Z.: MODELLING OF THE TURBOCHARGER VIBRATIONS	173
14:50	Kellner J., Zeman V., Šašek J., Kubín Z.: IDENTIFICATION OF DAMPING PARAMETERS OF BLADED DISKS	75

15:15 – 16:00 Coffee Break – hotel lobby

16:00	Fischer C., Pospíšil S., Náprstek J.: EXPERIMENTAL VERIFICATION OF RESONANCE BEHAVIOUR OF A DAMPED SPHERICAL PENDULUM	37
16:25	Pečinka L., Švrček M.: A STUDY OF FUEL ROD VIBRATION INDUCED BY COOLANT CROSS FLOW IN THE REACTOR CORE	115
16:50	Frantík P., Štafa M.: BASIN BOUNDARIES OF PLANE MODEL OF IMPACTING COIN	41
17:40	Popovic M., Koňas P., Iván L.: HOW TO STREAMLINE SIMULATIONS USING PARAMETRIC MODELS IN ANSYS?	

18:30 D i n n e r - Restaurant

Wednesday – 15 May 2013 – Lecture Hall I

9:00 – 12:15 *Dynamics* chairmen: Půst L. & Stein G. (DYN)

9:00	Tesar A.: VIBRATION CONTROL OF CARBON BRIDGES	159
9:25	Foglar M., Göringer J.: THE INFLUENCE OF THE BRIDGE STRUCTURAL ARRANGEMENT ON THE DISTRIBUTION OF THE NOISE IMPACT INDUCED BY TRAFFIC	39
9:50	Jiříček P., Foglar M.: INFLUENCE OF THE REINFORCEMENT ON THE IMPACT RESISTANCE OF A BRIDGE PIER	73

10:15 – 11:00 *Coffee Break – hotel lobby*

11:00	Šána V., Polák M.: TRANSVERSE VIBRATING BEAM LOADED BY MOVING LOAD	149
11:25	Sobotka J.: FREE VIBRATION ANALYSIS OF EULER-BERNOULLI BEAM WITH DISCONTINUITIES BY MEANS OF DISTRIBUTIONS	139
11:50	Šedlbauer D.: OPTIMIZATION OF DYNAMICALLY LOADED CIVIL ENGINEERING STRUCTURES	151

12:15 – 14:00 *L u n c h - Restaurant*

Thursday – 16 May 2013 – Lecture Hall I

9:00 – 12:15 *Dynamics* chairmen: Kozánek J. & Zapoměl J. (DYN)

9:00	Šobra K., Fajman P.: INFLUENCE OF THE DESIGN PARAMETERS ON THE RESPONSE OF THE STEP SKEW JOINT WITH A KEY	155
9:25	Polach P., Hajžman M., Václavík J.: EXPERIMENTAL AND COMPUTATIONAL INVESTIGATION OF A SIMPLE FIBRE-MASS SYSTEM	119
9:50	Makovička D., Makovička D.: ASSESSMENT OF BUILDING STRUCTURE LOADED BY TERRORIST EXTERNAL EXPLOSION	95

10:15 – 11:00 *Coffee Break – hotel lobby*

11:00	Chalupa M., Vlach R.: SIMULATION OF VEHICLE TRACK RUNNING	67
11:25	Němec I., Sychrová Š.: STUDY OF THE NUCLEAR POWER PLANT CONTAINMENT DAMAGE CAUSED BY IMPACT OF A PLANE	105

11:50 – 13:30 *Closing Ceremony & L u n c h - Restaurant*

4.2. Lecture Hall II

(Coffee Bar)

Detailed Programme

Fluid Mechanics **(FLU)**

Biomechanics **(BIO)**

Thermodynamics **(TER)**

Fracture Mechanics **(FRA)**

Tuesday – 14 May 2013 – Lecture Hall II

9:00 – 12:15 *Fluid Mechanics* chairmen: Vlasák P. & Chara Z. (FLU)

9:00	Bednář L., Tajč L., Miczan M.: PROTECTIVE SCREEN AND ITS INFLUENCE ON THE RELIABILITY OF THE CONTROL VALVE OPERATION	19
9:25	Dlugoš J., Roupec J., Strecker Z., Mazůrek I.: PROBLEMS OF FEM SIMULATION OF MAGNETO-RHEOLOGICAL CLUTCH'S MAGNETIC CIRCUIT	29
9:50	Havelka J., Kučerová A., Sýkora J.: NUMERICAL MODELING OF GROUNDWATER FLOW IN RANDOM MATERIALS	51

10:15 – 11:00 *Coffee Break – hotel lobby*

11:00	Tesař V.: ROLE OF MICROFLUIDICS IN DISCOVERING NEW MARKETABLE SUBSTANCES – A SURVEY	161
11:25	Hoznedl M., Tajč L., Bednář L.: SEPARATION OF THE LIQUID PHASE FROM THE STATOR BLADES OF THE LAST STAGE OF A 1000MW STEAM TURBINE	59
11:50	Kyncl M., Pelant J.: THE ANALYSIS OF THE BOUNDARY CONDITIONS FOR THE COMPRESSIBLE GAS FLOW AS A MODIFICATION OF THE RIEMANN PROBLEM	91

12:15 – 14:00 *L u n c h - Restaurant*

14:00 – 17:15 *Biomechanics* chairmen: Zolotarev I. & Horáček J. (BIO/TER)

14:00	Horáček J., Radolf V., Bula V., Veselý J., Laukkanen A. M.: EXPERIMENTAL INVESTIGATION OF AIR PRESSURE, ACOUSTIC CHARACTERISTICS AND VIBRATIONS OF VOCAL FOLDS ON A COMPLEX PHYSICAL MODEL OF PHONATION IN HUMANS	55
14:25	Radolf V., Laukkanen A. M., Horáček J., Veselý J., Liu D.: IN VIVO MEASUREMENTS OF AIR PRESSURE, VOCAL FOLDS VIBRATION AND ACOUSTIC CHARACTERISTICS OF PHONATION INTO A STRAW AND A RESONANCE TUBE USED IN VOCAL EXERCISING	127
14:50	Švancara P., Tomeček V., Horáček J., Švec J. G.: FINITE ELEMENT MODELLING OF SOUND PRESSURE AROUND THE HUMAN HEAD DURING PHONATION	157

15:15 – 16:00 *Coffee Break – hotel lobby*

16:00	Vampola T., Horáček J.: EFFECT OF THE SIZE OF PIRIFORM SINUSES ON THE VOICE QUALITY	165
16:25	Parma S., Plešek J., Hrubý Z., Marek R., Feigenbaum H. P., Dafalias Y. F.: IDENTIFICATION OF PARAMETERS OF THE FEIGENBAUM-DAFALIAS DIRECTIONAL DISTORTIONAL HARDENING MODEL	113
16:50	Hušek M., Loufek J.: SIMULATION OF INFRARED HEATING FOR INDUSTRIAL PRACTICE	63

18:30 *D i n n e r - Restaurant*

Wednesday – 15 May 2013 – Lecture Hall II

9:00 – 12:15 *Fluid Mechanics* **chairmen: Tesař V. & Zolotarev I. (FLU)**

9:00	Chára Z., Vlasák P., Kysela B.: OBLIQUE COLLISIONS OF NON-ROTATING SPHERICAL PARTICLES WITH A WALL	69
9:25	Kharlamova I. S., Kharlamov A., Vlasák P.: SALTATION OF SAND IN VICINITY OF CYLINDRICAL COLUMN	77
9:50	Kolařík F., Patzák B.: MODELING OF FIBER ORIENTATION IN FIBER-REINFORCED FRESH CONCRETE FLOW	79

10:15 – 11:00 *Coffee Break – hotel lobby*

11:00	Král R., Pospíšil S.: CLIMATIC WIND TUNNEL FOR MATERIAL AND STRUCTURES INVESTIGATION	87
11:25	Brouček M., Králík M., Nowak P.: HYDRAULIC AND STRUCTURAL ANALYSIS OF FLAP GATES	23
11:50		

12:15 – 14:00 *L u n c h - Restaurant*

Thursday – 16 May 2013 – Lecture Hall II

9:00 – 12:15 *Fracture Mechanics* chairmen: Žmindák M. & Zolotarev I. (FRA)

9:00	Havlíková I., Šimonová H., Pail T., Navrátilová E., Majtánová R. V., Keršner Z.: EFFECT OF SOFTENING FUNCTION TYPE IN THE DOUBLE-K FRACTURE MODEL FOR THE EVALUATION OF FRACTURE TESTS ON CONCRETE SPECIMENS WITH AND WITHOUT POLYPROPYLENE FIBRES	53
9:25	Kovář M., Foglar M.: MECHANICAL PROPERTIES OF FRC WITH VARIOUS FIBER TYPE AND CONTENT	85
9:50	Pail T., Frantík P.: EXTENSION OF SEMI-ANALYTICAL FRACTURE MODEL BASED ON THE COHESIVE CRACK APPROACH	111

10:15 – 11:00 *Coffee Break – hotel lobby*

11:00	Stratil L., Hadraba H., Šiška F., Dlouhý I.: A CALIBRATION OF GURON-TVERGAARD-NEEDLEMAN MICROMECHANICAL MODEL OF DUCTILE FRACTURE	147
11:25	Vorel J., Boshoff W.P.: NUMERICAL MODEL FOR DUCTILE FIBER-REINFORCED CEMENT-BASED COMPOSITE	169

11:50 – 13:30 *Closing Ceremony & Lunch - Restaurant*

4.3. Lecture Hall III **(TV Club)**

Detailed Programme

<i>Mechanics of Solids</i>	<i>(FRA)</i>
<i>Historical structures</i>	<i>(HIS)</i>
<i>Mechatronics</i>	<i>(MCT)</i>

Tuesday – 14 May 2013 – Lecture Hall III

9:00 – 12:15 *Mechanics of Solids* chairmen: Náprstek J. & Šejnoha M.(SOL)

9:00	Baláž I., Koleková Y.: ELASTIC CRITICAL BUCKLING STRESS OF THE WEB GIRDER SUBJECTED TO TRANSVERSE FORCE	17
9:25	Dobeš M., Vrbka J.: EXPERIMENTAL DETERMINATION OF POLYMER MATERIAL CHARACTERISTICS HAVING REGARD TO THE FEM COMPUTATIONAL ANALYSIS	31
9:50	Finotto V.C., Valášek M.: SINGLE-OBJECTIVE SIZING AND TOPOLOGY OPTIMIZATION OF CABLED-TRUSSES USING GENETIC ALGORITHMS	35

10:15 – 11:00 *Coffee Break – hotel lobby*

11:00	Horák M., Jirásek M.: DISTANCE-BASED AND STRESS-BASED GRADIENT-ENHANCED DAMAGE MODELS	57
11:25	Koleková Y., Baláž I.: WEB GIRDER RESISTANCE TO TRANSVERSE FORCES	81
11:50	Koudelka P., Bryscejn J.: EXPERIMENT E5/0,1 WITH LATERAL PASSIVE PRESSURE DURING ROTATION ABOUT THE TOE – GRANULAR MASS DEFORMATIONS	83

12:15 – 14:00 *L u n c h - Restaurant*

14:00 – 17:15 *Mechanics of Solids* chairmen: Zapoměl J. & Půst L. (SOL)

14:00	Králík V., Němeček J.: SPHERICAL NANOINDENTATION APPLIED TO ALUMINIUM FOAM	89
14:25	Lokaj A., Klajmonová K., Mikolášek D.: CARRYING CAPACITY OF ROUND TIMBER BOLTED JOINTS WITH STEEL PLATES UNDER STATIC AND CYCLIC LOADING	93
14:50	Myšáková E., Lepš M.: MULTIOBJECTIVE MINIMAX DESIGNS OF EXPERIMENTS	99

15:15 – 16:00 *Coffee Break – hotel lobby*

16:00	Nežerka V., Vorel J., Zeman J.: 2D FINITE ELEMENT ANALYSIS OF AGGREGATE INFLUENCE ON MECHANICAL PROPERTIES OF MORTAR SAMPLES.	107
16:25	Pospíšilová A., Lepš M.: BRANCH AND BOUND METHOD FOR OPTIMIZATION OF CABLE-TRUSS STRUCTURES	121
16:50	Drahorád M.: LOAD-BEARING CAPACITY OF MASONRY ARCH BRIDGES	33
17:15	Sebek F., Petruska J., Navrat T.: ON ADVANCE IN LEVELING PROCESS OF LONG PRODUCTS	133

18:30 *D i n n e r - Restaurant*

Wednesday – 15 May 2013 – Lecture Hall III

9:00 – 12:15 *Mechanics of Solids* chairmen: **Petruška J. & Zeman V.** (SOL)

9:00	Shánel V., Španiel M.: PROJECTILE IMPACT MODELS OF COMPOSITE PLATES FOR NUMERICAL SIMULATIONS	135
9:25	Silva W.R.L., Šmilauer V., Štemberk P.: ANALYSIS OF THE THERMAL BEHAVIOR OF MASS CONCRETE BASED ON SEMI-ADIABATIC TEMPERATURE MEASUREMENTS	137
9:50	Riecky D., Sapietová A., Žmindák M.: MESHLESS LOCAL PETROV-GALERKIN FORMULATION OR ANALYSIS OF COMPOSITE PLATES REINFORCED BY UNIDIRECTIONAL FIBERS	129

10:15 – 11:00 *Coffee Break – hotel lobby*

11:00	Stránský J.: FEM–DEM COUPLING AND muPIF FRAMEWORK	145
11:25	Šejnoha M., Brouček M.: EXPERIMENTAL INVESTIGATION OF THE FIRE RESISTANCE OF MODIFIED CONCRETE	153
11:50	Urbanová S., Šejnoha M., Vorel J.: STRUCTURAL AND MATERIAL ANALYSIS OF CERAMIC MATRIX COMPOSITES	163

12:15 – 14:00 *L u n c h - Restaurant*

Thursday – 16 May 2013 – Lecture Hall III

9:00 – 12:15 *Mechanics of Solids* chairmen: **Náprstek J. & Fischer C.**
(SOL/HIS/MCT)

9:00	Zobal O., Lovichová R., Padevět P.: MECHANICAL PROPERTIES OF CEMENT PASTE WITH 50% FLY ASH AT HIGH TEMPERATURES	177
9:25	Zrůbek L., Kruis J., Novák J., Kučerová A.: PARALLEL COMPUTATION OF MICROSTRUCTURAL FIELDS BASED ON EXTENDED WANG TILE SETS	179
9:50	Pochylý F., Fialová S., Krutil J.: NEW MATHEMATICAL MODEL OF CONTINUUM MECHANICS	117

10:15 – 11:00 *Coffee Break – hotel lobby*

11:00	Somr M., Kabele P.: SIMULATION OF HOST ROCK CRACKING DUE TO PRESSURE CHANGES IN MAGMA CHAMBER	141
11:25	Přinosil M., Kabele P.: NUMERICAL SIMULATIONS OF EFFECTS OF SPECIMEN PREPARATION METHOD ON PROPERTIES OF FIBER COMPOSITES	123

11:50 – 13:30 *Closing Ceremony & L u n c h - Restaurant*

4.4. Lecture Hall IV
(Night Club)

Detailed Programme

Reliability of Structures

(REL)

Tuesday – 14 May 2013 – Lecture Hall IV

9:00 – 12:15 Reliability of Structures chairmen: **Petruška J. & Kozánek J. (REL)**

9:00	Agel P., Lokaj A.: REPAIRING AND REINFORCING LOAD BEARING ELEMENTS OF TIMBER STRUCTURES, DAMAGED BY BIO-DEGRADATION	15
9:25	Göringer J., Foglar M.: INFLUENCE OF THE LONG TERM EXPOSURE TO AGGRESSIVE ENVIRONMENT ON THE FATIGUE PERFORMANCE OF CONCRETE SPECIMENS	45
9:50	Janouchová E.: COMPARISON OF NUMERICAL METHODS FOR UNCERTAINTY QUANTIFICATION	71

10:15 – 11:00 Coffee Break – hotel lobby

11:00	Myšáková E., Pospíšilová A., Lepš M.: MULTIOBJECTIVE ADAPTIVE UPDATING OF SURROGATE MODELS	101
11:25		
11:50		

12:15 – 14:00 Lunch - Restaurant

TV Club

Poster Session

(POS)

Note:

All of the posters exhibited at the Conference will be accepted into the competition for the **Prize of the Managing Director of the ŽĎAS Company**. The special committee – under chairmanship of **Mr. Ivan Trajtel', MSc.**, technical director of the ŽĎAS company – will conclude the assessment of the posters exhibited on **Wednesday at 13:30**.

14 – 15 May 2013 – TV Club

Poster Session: Tuesday 9:00 - Wednesday 18:00 (POS)
chairmen: Formánek M. & Zolotarev I.

1	Beneš L.: NUMERICAL MODELING OF SEVERAL CASES OF THE STRATIFIED FLOW	21
2	Čečrdle J., Vích O.: AEROELASTIC SENSITIVITY ANALYSIS OF AIRLINER WING	25
3	Demjančuková K., Pečínka L.: IMPACT OF SEISMIC EVENT ON RUPTURE PROBABILITY OF CIRCUMFERENTIALLY CRACKED LARGE-DIAMETER PIPING	27
4	Fürst J., Luxa M., Šimurda D.: SPAN-WISE DISTRIBUTION OF LOSSES IN PRISMATIC TURBINE CASCADE	43
5	Halama J., Fořt J. .: NUMERICAL SIMULATION OF TRANSONIC FLOW OF CONDENSING STEAM	49
6	Hračov S., Pospíšil S., Brůna T.: MODAL ANALYSIS OF TALL SLENDER STRUCTURES USING SOFTWARE GMAST	61
7	Hyhlík T.: NUMERICAL MODELLING OF HEAT AND MASS TRANSFER IN THE COUNTERFLOW WET-COOLING TOWER FILL	65
8	Michálek P., Zacho D.: HARMFUL GAS DISPERSION IN COMPLEX TERRAIN	97
9	Nosek J.: USE BOINC FOR VOLUNTEER COMPUTING EXTENDED ABSTRACT	109
10	Řidký V., Šidlof P., Vlček V.: PARALLEL NUMERICAL SIMULATION OF AIRFLOW PAST AN OSCILLATING NACA0015 AIRFOIL	131