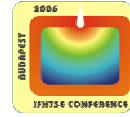




**3rd International Conference on
Thermal Process Modelling and Simulation
Scientific Programme and Table of Contents**



Tuesday, 25 April

18.00 Welcome buffet

Wednesday, 26 April

08.00 *Registration*

08.30 Opening ceremony

Chairman: Miklós Tiszta

09.00 Welcome speech on behalf of Hungarian Academy of Sciences

József Gyulai, member of the Academy

09.20 Welcome speech on behalf of IFHTSE

Robert Wood, secretary of IFHTSE

Plenary session (PL)

Chairman: József Gyulai

09.40 **PL-1** *Sabine Denis, J.P. Bellot, P. Archambault, E. Gautier*: Modelling heat treatment : recent developments

10.10 **PL-2** *Thomas Bell, Y. Sun, H. Dong*: Contact mechanics modelling of surface engineered systems

10.40 *Coffee break*

Plenary session (PL)

Chairman: Zoltán Kolozsvári

11.00 **PL-3** *Miklós Tiszta, Zsolt Lukács, Gaszton Gál*: Numerical modelling of hot forming processes

11.30 **PL-4** *Jozsef Tejc*: Industrial application of simulation of heat treatment processes

12.30 *Lunch*

Simulation of heat-treatment processes (O-I)

Chairmen: Thomas Bell, Tamás Réti

13.30 **O-I/1** *Martin Hunkel, Franz Hoffmann, Hans-Werner Zoch*: Simulation of the heat treatment distortion of cylindrical shafts due to segregations in a carburizing steel grade

13.50 **O-I/2** *Reza Rowsan, Maria Kocsis Baán*: Finite element modelling of laser transformation hardening of steels

14.10 **O-I/3** *Krich Sawamiphakdi, J.B. Yang, W.T. Wu*: Finite element modelling of induction hardening process

14.30 **O-I/4** *Antonius Grosse-Groegemann, Lorenzo Croce*: Optimization of controlled heating and cooling in a continuous annealing line by a thermodynamic model

14.50 **O-I/5** *Marco Burtchen, Martin Hunkel, Thomas Lübben, Franz Hoffmann, Hans-Werner Zoch*: Simulation of quenching treatments on bearing components

15.10 **O-I/6** *Janez Grum, Tomas Kek, Franc Kosel, Milan Batista, Martin Zupancic*: Measurement and numerical analysis of surface residual stresses occurring under different quenching conditions

15.40 *Coffee break*

Simulation of heat-treatment processes (O-I)

Chairmen: Jozsef Tejc, Reza Rowsan

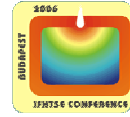
16.00 **O-I/7** *Ju Dongying, Yosuke Ito, Tatsuo Inoue*: Simulation and experimental verification of carburised and nitrided quenching process

16.20 **O-I/8** *Imre Felde, Tamás Réti, Božo Smoljan, Rafael Colas, Imre Czinege*: Quenchant evaluation by using quality functions

16.40 **O-I/9** *Sylvester Jonczik, J. Grzyb, T. Babul, A. Nakonieczny*: Computer simulation of hardness distribution in the quenched round bar cross-section

17.00 **O-I/10** *Young-Kook Lee, Minsu Jung, Seok-Jae Lee*: A numerical model for predicting microstructure and strain change during the tempering of S45C martensitic steel

17.20 **O-I/11** *Božo Smoljan, Dario Iljkic*: 3D simulation of quenching of steel specimen



Thursday, 27 April

Modelling of phase transformations (O-II)

Chairmen: Božo Smoljan, András Roósz

- 09.00 **O-II/1** Zoltán Dudás: Creation of TTT diagrams using macro elements
09.20 **O-II/2** Eric Feulvarch, Jean-Michel Bergheau, Frédéric Boitout: A finite element procedure using an implicit approach for phase changes
09.40 **O-II/3** Jan Kobut: Modelling of austenitization kinetics of ferritic nodular cast iron
10.00 **O-II/4** Young-Kook Lee, Seok-Jae Lee: A computational model for phase transformation-temperature-distortion coupling of AISI 5120 steel
10.20 **O-II/5** Holger Surm, Olaf Kessler, Franz Hoffmann, Hans-Werner Zoch: A model for austenitising of hypereutectoid steels during heating with non constant heating rates
10.40 *Coffee break*

Modelling of phase transformations (O-II)

Chairmen: Victor Li, János Takács

- 11.00 **O-II/6** Larissa Petrova, Olga Chudina: Structural models application for the development of strengthening technologies
11.20 **O-II/7** Münip Dalgiç, G. Lönisch, Hans-Werner Zoch: Transformation plasticity at different phase transformations of a through hardening bearing steel
11.40 **O-II/8** Zoltán Dudás, János Ginsztler: Virtual TTT diagrams
12.00 **O-II/9** Victor Li, George E. Totten: Austenite decomposition models for the prediction of steel harden- ability
12.30 *Lunch*

Modelling of physical phenomena (O-III)

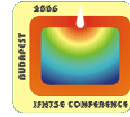
Chairmen: Leszek Dobrzanski, Tamás Tóth

- 14.00 **O-III/1** István Iván, Sándor Kökényesi, István Szabó, Dezső Beke: Simulation of photo-induced diffusion in amorphous chalcogenide multilayers
14.20 **O-III/2** Friedhelm Frerichs, Thomas Luebben, Franz Hoffmann, Hans-Werner Zoch: Numerical analysis of distortion due to inhomogeneous distribution of martensite start temperature within SAE 52100 bearing rings
14.40 **O-III/3** Zoltán Erdélyi, Dezső Beke: Computer simulation and modelling of interface motion and transformation during heat treatment
15.00 **O-III/4** Carmen Acht, Thomas Luebben, Franz Hoffmann, Hans-Werner Zoch: Simulation of the influence of carbon profile and dimensions on distortion behaviour of SAE 5120 discs
15.20 **O-III/5** Magnus Rohde: Numerical modelling of the laser-surface interaction during laser induced modification processes of ceramic substrates
15.40 *Coffee break*

Materials and process parameters (O-IV)

Chairmen: Sabine Denis, István Artinger

- 16.00 **O-IV/1** Victor Li, Xin Yao: Thermal conductivity of steels for thermal process simulation
16.20 **O-IV/2** Rafael Colas, Dora Irma Martínez-Delgado, Imre Felde, Tamás Réti, Martha P. Guerrero-Mata: Experimental determination of heat flows in different cooling media
16.40 **O-IV/3** Leszek Dobrzanski, M. Drak, J. Trzaska: Modelling of magnetic, mechanical properties and corrosive wear of hard magnetic composite materials Nd-Fe-B
17.00 **O-IV/4** Pierre Chassagne, Emmanuelle Vidal-Sallé, Dominique Eyberamendy, Romain Remond, Jean François Jullien: Mechanical consequences induced by heat and mass transfers during wood drying process
17.20 **O-IV/5** Abderrazak Dabbagui, E. David, J. Masounave: Time domain dielectric measurements used as non-destructive evaluation technique for the characterization of micro-size particle of Alumina (ALFA-Al₂O₃) reinforced polymeric matrix composites
17.40 **O-IV/6** Vadim Kovtun, Tatyana Semenova, Yury Pleskachevsky: Thermal state modelling of metal-polymer composite powder materials under the effect of electric current
20.00 *Banquet*



Friday, 28 April

Simulation of industrial processes (O-V)

Chairmen: Robert Wood, Mária B. Kocsis

- 09.00 **O-V/1** Nobuhito Ishikawa: Thermo-elastic simulation of aluminium direct chill casting process for crack sensitivity evaluation
- 09.20 **O-V/2** Heli Kytönen, Jyrki Miettinen, Seppo Louhenkilpi, Jukka Laine : IDS - simulation tool for solidification and material properties of steels
- 09.40 **O-V/3** Ramezanalí Mahdavinéja : Finite element analysis of air gap thickness effect in electro slag remelting process
- 10.00 **O-V/4** Tamás Markovits, János Takács, A. Szilágyi, X. Wangfeng: Real-time monitoring of laser bending process
- 10.20 **O-V/5** Paolo Dalbo, Manfred Geiger: Effects of viscous dissipation in the flow influenced tube hydroforming
- 10.40 *Coffee break*

Simulation of industrial processes (O-V)

Chairmen: Imre Felde, György Krállics

- 11.00 **O-V/6** Márta Plangár, András Roósz: The effect of the heat treatment on the deep-drawing and earing properties in case of 99.5AL alloy
- 11.20 **O-V/7** Wang Mingwei, Wei-Jia Wang, Li-Wen Zhang: FEM simulation of vacuum hot bulge forming process of BT20 titanium alloy cylindrical workpiece
- 11.40 **O-V/8** Yuan Siyu, Li-Wen Zhang, Mao Li, Shuqi Guo, Yu Zhen, Min Qi, Shulun Liao: Static and dynamic Fe analysis of 304 stainless steel rod and wire hot continuous rolling process
- 12.00 **O-V/9** Ramezanalí Mahdavinéja: Thermal and mechanical stress comparison in turning machine's spindle
- 12.30 *Lunch*

Simulation of industrial processes (O-V)

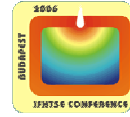
Chairmen: Mária B. Kocsis, Imre Czinege

- 14.00 **O-V/10** Victor Li: Coupled analysis of heat transfer, microstructure evolution and residual stress in HSLA pipeline steel welds
- 14.20 **O-V/11** Dominique Deloison, Claudie Darcourt, Christoph Heimerdinger: Laser beam welding modelling of aeronautical structures
- 14.40 **O-V/12** Walid El Abmar, Jean-François Jullien, Philippe Gilles: Reliability of hardening model to predict the welding residual stresses
- 15.00 **O-V/13** Andrea Bernáth, Hilda Marton, János Dobránszky: The analysis of the plasma of TIG-welding
- 15.20 **O-V/14** Tobias Müller, Bernhard Wielage, Thomas Lampke: Numerical simulation of the thermo-elastic behaviour for textile structured CMC bearings
- 15.40 *Coffee break*

Simulation of industrial processes (O-V)

Chairmen: László Dévényi, Tamás Tóth

- 16.00 **O-V/15** Caner Simsir, Gur C. Hakan, Tamas Reti, Imre Felde: Determination of the effect of phase transformation on residual stress distribution in the quenched steel components by finite element modelling
- 16.20 **O-V/16** Ali Halimi, M. S. Ferah: Thermodynamic description of systems Cd-Te, Hg-Te and Cd-Hg-Te using the model of associated liquid solution
- 16.40 **O-V/17** Yonggang Duan, Frédéric Faure, Jean-Michel Bergbeau, Jean-Baptiste Leblond: Prediction of welding distortions using an adaptive 3D/shell approach
- 17.00 **O-V/18** Noruzi Saeid, H. Farhangi, M. Nili-Ahmadabadi, J. Rassižadehghani: Numerical simulation and experimental measurement of residual stress in shaped castings
- 17.20 **O-V/19** Si-Young Kwak, Jung-Ho Nam, Sung-Wook Lee, Jeong-Kil Choi: Thermal stress analysis by a hybrid technique of FDM and FEM for casting process
- 17.40 **O-V/20** Li Cheng, Zhang Liven, Mu Zhongjun: 3D coupled thermo-mechanical FEM simulation of hot-forging process of a gas turbine compressor blade



Poster session (P)

P/1 *Mohamed Elgarni, Salem Debbab, Jamaledin Saidan, Saif Islam Mustafa and Abd Al-majeed Dweeb:* Synthetic Fuel from Catalytic Degradation of Waste Polymers Over Solid Acid Zeolites

P/2 *L.A. Dobrzański, M. Krupiński, J.H. Sokolowski:* Methodology of Quality Assessment of Castings from Al-Si

P/3 *Alina-Adriana Minea, Adrian Dima:* Experimental and Theoretical Contributions in Studying Stress Variation of an AlCu₄Mg₁ Aluminum Alloy

P/4 *Kai Zhang, Weijun Liu, Xiaofeng Shang:* FEM simulation of the temperature field during the laser metal deposition shaping process

P/5 *Chakib Fakih, Glades B. Fakih:* Modelling of Heat Transfer in Micro Tube Condenser

P/6 *Kai Zhang, Weijun Liu, Xiaofeng Shang:* Thermal process modeling for laser and powder particles interaction during the laser metal deposition shaping process

P/7 *Akhtar Shahid:* Effect of Surface Decarburization on the Mechanical Properties of C % 0.30, Si % 1.01, Mn % 0.88, Cr % 0.86, Steel

P/8 *B. Aour, F. Zaïri, J. M. Gloaguen, M. Nait-Abdelaziz, J. M. Lefebvre:* Strain and stress analysis of HDPE processed by ECAE at different temperatures and ram speeds

P/9 *Tong Wu, Michel Coretand, Alain Combescure:* A Mesoscopic Approach to Simulate the Damage Induced by Welding

Author's Index