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European Conference on Heat Treatment 2025

and

5th International Conference on Heat Treatment
and Surface Engineering in Automotive Applications

4 – 6 June 2025

Prague, Czech Republic

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WEDNESDAY, 4.6.2025

8:00 Registration

SESSION A MAIN CONFERENCE HALL

Opening Ceremony

9:00 Introduce and Welcome

Filip Vráblík, ATZK President

Keynote lectures

9:10 Application of physics-informed neural networks for heat treatment operations

I.Felde, IFHTSE, *France*

Opening of the Exhibition

Digitalization - Industry 4.0, Artificial Intelligence (AI)

Quenching technology, equipment and quenchants

Chairpersons: Reinhold Schneider – IFHTSE / University of Applied Sciences Upper Austria

Filip Vráblík - ATZK

9:50 From automation to intelligent autonomy: AI and Edge Control in sustainable heat treatment

P.Sherwin, *Eurotherm by Watlow, United States*

10:10 Analysis of effects due to stepped quenching during case hardening of gears

M.Hunkel, *Leibniz-Institut für Werkstofforientierte Technologien – IWT, Germany*

10:30 Water spray quenching – a new process option for intensive quenching of serial parts

V.Heuer, *ALD Vacuum Technologies GmbH, Germany*

■ **10:50 – 11:10 Coffee Break** ■

1st Floor by Exhibitions

11:10 Limitations of standard probes for the measurement of spray quenching

R.Goldstein, *Quaker Houghton, United States*

11:30 Modern quenching oils for use in low-pressure carburising processes: requirements – properties – applications

R.Braun, *BURGDORF GmbH & Co. KG, Germany*

11:50 Vacuum oil quenching system : an enabler for treatment of massive pieces

C.Villard, *ECM Technologies, France*

12:10 Cooling curve analysis of an aqueous polyvinylpyrrolidone (PVP) polymer quenchant as a function of fluid velocity

S.Gallegos Cantu, *Quaker Houghton, United States*

12:30 Flexible and modular multiprocess installations

K. Beaujon, *ECM Technologies, France*

● **12:50 – 14:00 Lunch** ●

1st and 2nd Floors

Thermochemical Treatments

Treatment of Additive Manufactured Parts

Chairpersons: Massimo Pellizzari – IFHTSE
Pavel Šuchmann – COMTES FHT, a.s.

- 14:00** Microstructure and mechanical properties of low-carbon steels quenched and tempered after gas carburizing, carbonitriding, and nitriding
K.Kawata, Kawata PE Office, Japan
- 14:20** Effectiveness of surface activation in correlation with surface finishing condition for expanded austenite formation during plasma nitrocarburizing of AISI 316L
S.M.Jafarpour, Technische Universität Bergakademie Freiberg, Germany
- 14:40** Influence of HIP on the mechanical properties of selected metallic materials
T.Čegan, VSB - Technical University of Ostrava, Czech Republic
- 15:00** Center of excellence for medical applications
J.Stanislav, JST Consultancy, Czech Republic
- 15:20** Heat treatment strategies for tailoring the microstructure of aluminium matrix composites fabricated via LPBF
M.Bona, Politecnico di Milano, Italy

■ **15:40 – 16:00 Coffee Break** ■
1st Floor by Exhibitions

Heat Treatment of Steels, Non Ferrous and Complex Alloys

Chairpersons: Pavel Novák – University of Chemical Technology in Prague
Bernard Kuntzmann – Listemann AG

- 16:00** Grades for transmission parts with improved resistance to fatigue and in-use softening
T.Picot, Arcelormittal Maizieres Research SA, France
- 16:20** Intermetallic composites as wear resistant materials
P.Novák, University of Chemical Technology in Prague, Czech Republic
- 16:40** Mechanical properties of 6000 series aluminum substrates joined together using a flux-free brazing technology in a graphite vacuum furnace
A.Hadian, University of Applied Science Northwestern Switzerland, Switzerland
- 17:00** Effect of heat treatment on the microstructure and properties of FeSi-NiAl composite prepared by induction melting
V.Kaloč, VSB - Technical University of Ostrava, Czech Republic
- 17:20** Innovations in vacuum aluminum brazing furnaces for contemporary EV thermal management systems
G.Valsecchi, TAV VACUUM FURNACES, Italy

SESSION B MEETING'S ROOM

Chairpersons: Martin Kuřík

- 14:00** CQI-9 Guideline is an opportunity or a burden?
S.Rašková, Czech Society for Quality, z.s., Czech Republic
- 14:20** Effect of laser shock peening and hot isostatic pressing on the microstructure of MoNiCr nickel based alloy
D.Bričín, Research Centre Řež, Czech Republic

- 14:40 MoNiCr nickel alloy for energy industry applications produced via additive manufacturing**
D.Nacházelová, *COMTES FHT a.s., Czech Republic*
- 15:00 Effect of heat treatment on mechanical properties, microstructure and corrosion resistance of M789 steel produced by LPBF method**
A.Málková, *University of West Bohemia in Pilsen, Czech Republic*
- 15:20 Cleaning for heat treating**
S.Kozdroń, *Quaker Houghton, Poland*

■ **15:40 – 16:00 Coffee Break** ■
1st Floor by Exhibitions

17:40 END of the first day

19:00 – 20:00 Visit The St. Nicholas Church with a Concert

THURSDAY, 5.6.2025

MAIN CONFERENCE HALL

Surface Hardening (Induction, Laser, Electron Beam)

Hydrogen in Heat Treatment Industry

Chairpersons: Anja Buchwalder - Fachhochschule Northwestern Switzerland FHNW
Václav Hošek, Ecosond s.r.o.

- 9:00 Lasers in additive manufacturing**
S.Němeček, *University of West Bohemia in Pilsen, Czech Republic*
- 9:20 Laser hardening of complex geometries with dynamic beam shaping and temperature field control**
M.Seifert, *Fraunhofer IWS Dresden, Germany*
- 9:40 Homogenization of the element distribution during wire electron beam cladding of CuAl8 onto AlSi10Mg**
P.Hengst, *Technische Universität Bergakademie Freiberg, Germany*
- 10:00 Hydrogen susceptibility linked to the mechanical properties and microstructural aspects of common steel for future decarbonated mobility**
S.Clemang, *ABS Centre Métallurgique, France*
- 10:20 Hydrogen in high-pressure gas quenching: creating opportunities**
D.Kraus, *Aichelin Holding GmbH, Austria*

■ **10:40 – 11:00 Coffee Break** ■

Numerical Simulation in Heat Treatment

Chairpersons: Imre Felde - IFHTSE

Viktor Novák – MEDUNA vacuum hardening plant

11:00 Numerical modelling of the carburization - quenching process in steels

B.A.Salim, *GeePs-CentraleSupélec and LSPM-USPN, France*

11:20 CFD simulation of air quenching

A.Cardon, *Safran Tech, France*

11:40 Optimizing gas flow in a furnace through numerical simulation: A case study using qobeo®

L.Sardo, *Sciences Computers Consultants, France*

12:00 Optimal design of steel grades to meet a target hardenability profile through evolutionary computation and autoencoders

V.Colla, *Scuola Superiore Sant'Anna, TeCIP Institute, Italy*

12:20 Importance of radiative heat transfer in industrial furnaces: insights from numerical simulation of single and multi-part heating

M.Binagot, *Transvalor S.A, France*

● **12:40 – 14:00 Lunch** ●

1st and 2nd Floors

Testing and Characterization of Heat Treated Parts

Chairpersons: Thomas Waldenmaier - Robert Bosch GmbH

Klára Tesárková – Bodycote HT s.r.o.

14:00 Non-destructive evaluation of layers after thermo-chemical treatment

K.Tesárková, *Bodycote HT s.r.o., Czech Republic*

14:20 Mössbauer spectroscopy and its application to the characterization of heat treated parts

J.Pechoušek, *Palacký University Olomouc, Czech Republic*

14:40 Phosphorus embrittlement in austenite during heat treatment of an air hardening steel

D.David, *University of Applied Sciences Upper Austria, Austria*

15:00 Metallurgical characterization of electrodeposited hard chromium from a trivalent inorganic electrolyte

R. Le Barbenchon, *La Rochelle Université, France*

15:20 Reduction of distortion by using of fixture hardening machines

H.Juretzko, *HEESS GmbH & Co KG, Germany*

■ **15:40 – 16:00 Coffee Break** ■

1st Floor by Exhibitions

16:00 – 16:30

MEETING ON PRESENTATIONS

Meeting's room

Slides which help the audience follow the talk - Getting research results efficiently across to the attendees' minds

S.Hock, *IFHTSE, Switzerland*

16:00 -17:00
POSTER SESSION

High surface hardening depths in large rolls and how specially adapted converter technology helps to achieve them

Ch.Tränkner, *ITG Induktionsanlagen GmbH, Germany*

Annealing treatment and microstructure analysis on the electroplating Ni-B alloys prepared in TMAB enriched watts baths

I.S.Yu, *National Dong Hwa University, Taiwan*

Local temperatures in mechanical alloying

J.Jeníček, *University of Chemistry and Technology, Czech Republic*

Changes in mechanical properties of medium manganese steel after forming and heat treatment

R.Leták, *University of West Bohemia in Pilsen, Czech Republic*

Press-hardening of high carbon low-density steels

F.Votava, *University of West Bohemia in Pilsen, Czech Republic*

Analysis of heat treatment effects on the microstructure and mechanical properties of 3D-printed and conventionally manufactured H11 steel

P.Fialová, *University of West Bohemia in Pilsen, Czech Republic*

Innovative heat-treatment for manufacturing structural parts from high strength aluminum alloys

M.Kumar, *EBNER Industrieofenbau GmbH, Austria*

17:00 END of the second day

17:30 Guide Tour at the Restaurant Cervený Jelen

19:00 - 22:00 Gala Dinner

Restaurant Cervený Jelen

FRIDAY, 6.6.2025

MAIN CONFERENCE HALL

9:00 – 11:00 Panel Discussion

Chairpersons: Reinhold Schneider – IFHTSE / University of Applied Sciences Upper Austria
Filip Vráblík - ATZK

R&D

Massimo Pellizzari, *AIM / IFHTSE, Italy*

Masahiro Okumiya, *JSHT / IFHTSE / Toyota Technological Institute, Japan*

Heat Treatment Companies

Thomas Waldenmaier, AWT / Bosch, Germany

Yoichi Watanabe, JSHT / NIPPON PARKERIZING, Japan

Steel Industry

Francesca Maurigh, AIM / Acciaierie Bertoli Safau, Italy

Shunsuke Toyoda, JSHT, Japan

Car Manufacturers

Martin Hrdlička, Škoda Auto, Czech Republic

Tsuyoshi Sugimoto, JSHT / National Institute of Technology, Asahikawa College / formerly Nissan Motor Corporation

▣ 11:00 – 11:20 Coffee Break ▣

1st Floor by Exhibitions

Sustainability in Heat Treatment and Surface Engineering

Energy Savings and CO2 Reduction, Energy Efficiency Enhancement

Chairpersons: Klaus Löser - ALD Vacuum Technologies GmbH

Václav Hošek, Ecosond s.r.o.

11:20 Heat treatment path towards sustainable and CO2-neutral manufacturing through digital tools and renewable fuels

P.Kus, Air Products PLC, United Kingdom

11:40 High-temperature heat pumps for waste heat upgrading in industrial heat treatment

J.Špale, Czech Technical University in Prague, Czech Republic

12:00 Innovations in high power laser cladding: the COAXquattro and Flextrack systems for enhanced manufacturing efficiency

L.Toma, Fraunhofer IWS Dresden, Germany

12:20 Prediction of power and energy demand for hybrid furnaces to optimize the use of fluctuating green energy sources

M.Hellwig, Ipsen International GmbH, Germany

12:40 How can low pressure carburizing save your money and increase process efficiency?

M.Bazel, SECO/WARWICK S.A, Poland

13:00 Energy and CO2 emission evaluation of a vacuum gas quenching process

B.Özdeşlik, Sistem Teknik Industrial Furnaces, Turkey

13:20 Announcement of the Poster Award winner, sponsored by Burgdorf GmbH

13:30 Announcement of the Aichelin Young Speakers Award winner, sponsored by Aichelin of Mödling

13:40 Announcement of the European Conference on Heat Treatment 2026

13:45 Closing Ceremony

13:50 End of the Conference

● 13:50 – 14:30 Lunch ●

1st and 2nd Floors

List of Exhibitors 2025

1st Floor



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4.5x1.5 m
table
2x chairs
counter
brochure stand

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2x chairs
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brochure stand

Exhibition

2x1 m
table
2x chairs
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2 Air Products spol. s r.o.
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