



# Program

## European Conference on Heat Treatment 2025

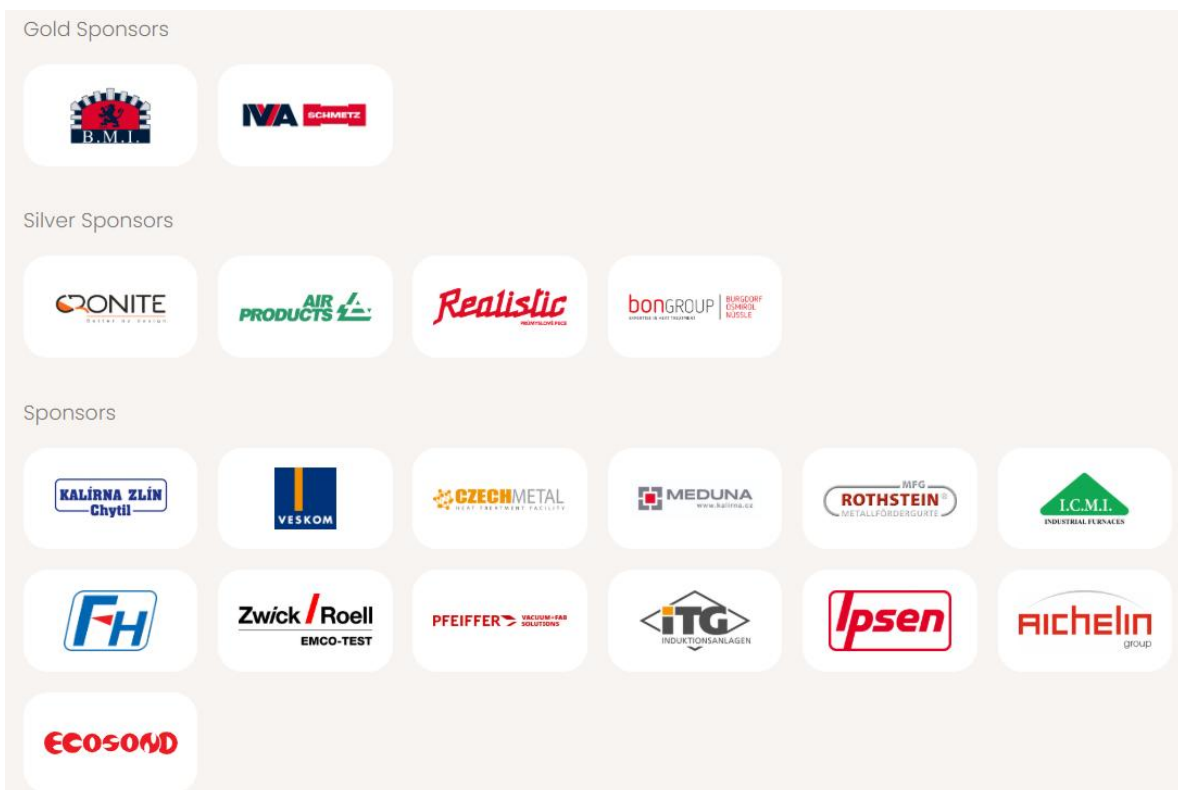
and

### 5<sup>th</sup> International Conference on Heat Treatment and Surface Engineering in Automotive Applications

4 – 6 June 2025

Prague, Czech Republic

Conference sponsored by



# WEDNESDAY, 4.6.2025

8:00 Registration

## SESSION A MAIN CONFERENCE HALL

### Opening Ceremony

**9:00 Introduce and Welcome**

Filip Vráblik, 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 quenchant

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

Filip Vráblik - 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** ■

1<sup>st</sup> 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** ●

1<sup>st</sup> and 2<sup>nd</sup> 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** ▣  
1<sup>st</sup> 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.Bričin, *Research Centre Řež, Czech Republic*

**14:40 MoNiCr nickel alloy for energy industry applications produced via additive manufacturing**

D.Nacházellová, *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** ■

1<sup>st</sup> 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** ●  
1<sup>st</sup> and 2<sup>nd</sup> 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** ▣  
1<sup>st</sup> 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 Cerveny Jelen**

**19:00 - 22:00 Gala Dinner**

Restaurant Cerveny 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** ▣

1<sup>st</sup> 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** ●

1<sup>st</sup> and 2<sup>nd</sup> Floors

# List of Exhibitors 2025

1<sup>st</sup> Floor



- **Gold Sponsor**  
4.5x1.5 m  
table  
2x chairs  
counter  
brochure stand
- **Silver Sponsor**  
2.5x1 m  
table  
2x chairs  
counter  
brochure stand
- **Exhibition**  
2x1 m  
table  
2x chairs  
brochure stand

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|--|---|---|--|---|
| <ul style="list-style-type: none"> <li><span style="color: yellow;">■</span> 1 Fours Industriels BMI + IVA SCHMETZ GmbH</li> </ul> | <ul style="list-style-type: none"> <li><span style="color: red;">■</span> 2 Air Products spol. s r.o.</li> <li><span style="color: red;">■</span> 3 REALISTIC a.s.</li> <li><span style="color: red;">■</span> 4 Cronite CZ</li> <li><span style="color: red;">■</span> 5 BURGDORF GmbH &amp; Co. KG</li> </ul> | <ul style="list-style-type: none"> <li><span style="color: blue;">■</span> 6 ITG Induktionsanlagen GmbH</li> <li><span style="color: blue;">■</span> 7 ROTANEO s.r.o.</li> <li><span style="color: blue;">■</span> 8 Transvalor S.A.</li> <li><span style="color: blue;">■</span> 9 Nippon Kormmeyer Carbon Group GmbH</li> <li><span style="color: blue;">■</span> 10 Hi-Tech engineering srl</li> <li><span style="color: blue;">■</span> 11 TAV VACUUM FURNACES SPA</li> <li><span style="color: blue;">■</span> 12 Eurotherm By Watlow</li> </ul> | <ul style="list-style-type: none"> <li><span style="color: blue;">■</span> 13 HTS vacuum furnaces Srl</li> <li><span style="color: blue;">■</span> 14 AICHELIN Group</li> <li><span style="color: blue;">■</span> 15 ALD Vacuum Technologies GmbH</li> <li><span style="color: blue;">■</span> 16 Vakuu Servis s.r.o.</li> <li><span style="color: blue;">■</span> 17 COMTES FHT a.s.</li> <li><span style="color: blue;">■</span> 18 ELTRO GmbH</li> <li><span style="color: blue;">■</span> 19 Wuxi Junteng Fanghu Alloy Casting Co., Ltd</li> </ul> | <ul style="list-style-type: none"> <li><span style="color: blue;">■</span> 20 SECO/WARWICK S.A.</li> <li><span style="color: blue;">■</span> 21 Pfeiffer Vacuum Austria</li> <li><span style="color: blue;">■</span> 22 MEAPFORNI S.R.L.</li> <li><span style="color: blue;">■</span> 23 ECM Technologies</li> <li><span style="color: blue;">■</span> 24 Ipsen International GmbH</li> <li><span style="color: blue;">■</span> 25 I.C.M.I Industrial Furnaces</li> </ul> |
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