

Session Program

5-8 Sept 2022

27th IFHTSE CONGRESS & EUROPEAN CONFERENCE ON HEAT TREATMENT 2022

HEAT TREATMENT

Wyndham Grand Salzburg Conference Center
Fanny-von-Lehnert-Straße 7, 5020 Salzburg, Austria

Tuesday 6 September

13:20

HEAT TREATMENT: Heat Treatment and Surface Engineering in Additive Manufacturing

Session | **Location:** Room 1 - SALZBURG | **Convener:** Massimo Pellizzari

13:20-13:45

Vacuum heat treatment of Ti6Al4V alloy produced via SLM additive manufacturing

Speaker

Giorgio VALSECCHI

13:45-14:10

Recent advances in heat treatment and surface engineering within metal additive manufacturing

Speaker

Thomas CHRISTIANSEN

14:10-14:35

Simultaneous aging and surface treatment of 3D printed maraging steel

Speaker

Dr Imre FELDE

14:35-15:00

Influence of the total thermal cycle during wire-based cladding by means of electron beam and subsequent boriding on the microstructure and properties of the Inconel 718 layer

Speaker

Anja BUCHWALDER

15:00

15:20

HEAT TREATMENT: Heat Treatment of Non-ferrous Alloys & Advanced Surface Engineering

Session | **Location:** Room 1 - SALZBURG | **Convener:** Gerald Klösch

15:20-15:45

The effects of heat treatments on the mechanical properties of secondary aluminium alloys

Speaker

Onur ÖZAYDIN

15:45-16:10

Analysis of the stress-relief heat treatment of aluminium alloy wheels

Speaker

Onur ÖZAYDIN

16:10-16:35

Modification of boride layers on alloy steel by impulse electron beam

Speaker

Undrakh MISHIGORZHIYN

16:35

Wednesday 7 September

09:00

HEAT TREATMENT: Modelling and Simulation

Session | **Location:** Room 1 - SALZBURG | **Convener:** Dr Imre FELDE

09:00–09:25

Visualization of vapor film collapse mode during unsteady boiling on oil quenching by using cellular automaton simulation

Speaker

Tsuyoshi SUGIMOTO

09:25–09:50

Combined CFD and heat treatment simulation of high-pressure gas quenching process.

Speakers

Paul HEINZ, Dr Kay JUCKELANDT

09:50–10:15

Applying the ANSYS GEKO Turbulence Model to Simulate Jet Impingement Cooling in Continuous Heat Treatment Lines

Speaker

Jan Erik MENZLER

10:15–10:40

Experimental and numerical investigation of heterogenous gas quenching for determining optimal heat treatment parameters

Speaker

Nithin Mohan NARAYAN

10:40

11:10

HEAT TREATMENT: Modelling and Simulation

Session | **Location:** Room 1 - SALZBURG | **Convener:** Thomas Lübben

11:10–11:35

Analysis of shots flight inside and outside of peening nozzle

Speaker

Yusuke SAEKI

11:35–12:00

Simulated Strains-Based Approach for Explaining Distortion and Residual Stress in Quenched Steel Cylinder

Speaker

Kyozo ARIMOTO

12:00–12:25

Application of New Artificial Neural Network model to Predict Heat Transfer Coefficients during Quenching

Speaker

Imre FELDE

12:25

14:20

HEAT TREATMENT: Energy and Environmental Aspects**Session** | **Location:** Room 1 - SALZBURG | **Convener:** Thomas Waldenmaier

14:20-14:45

Discussion on energy saving and emission reduction technology of heat treatment equipment**Speaker**

Klaus BUCHNER

14:45-15:10

CO₂-Reduction by enhanced energy efficiency in LPC-heat treating plants**Speaker**

Ben KAHLE

15:10-15:35

CO₂-neutral process heating for carburizing furnaces - Ecological analysis and first experimental results**Speaker**

Lukas SANKOWSKI

15:35

14:20

HEAT TREATMENT: Quenching Technology**Session** | **Location:** Room 3 - ATTERSEE | **Convener:** Bojan Podgornik

14:20-14:45

Design of a Quench Ring for Proper Quenching of Small Cylinders - Initial Investigation**Speaker**

Patrice LASNE

14:45-15:10

Design of a Quench Ring for Proper Quenching of Small Cylinders - Modified Design**Speaker**

Donald MACKENZIE

15:10-15:35

Control of quench severity by applying an electric potential during heat treatment of aluminium alloys**Speaker**

Peter KRUG

15:35

16:05

HEAT TREATMENT: Energy and Environmental Aspects**Session** | **Location:** Room 1 - SALZBURG | **Convener:** Bernard Vandewiele

16:05-16:30

Carburizing atmospheres in heat-treatment furnaces - Contribution of industrial gases for reducing the carbon footprint**Speaker**

Georg LEHMKUHL

16:30-16:55

Decarbonization plan for conventional heat-treatment facilities : CO2 contributors assessment, neutrality targets, levers and actions plan

Speaker

Valerie WOIMBEE

16:55-17:20

Climate change and loss of biodiversity raise new provocations on the materials science and surface engineering

Speaker

Zoltan KOLOZSVARY

17:20

16:05

HEAT TREATMENT: Quenching Technology

Session | **Location:** Room 3 - ATTERSEE | **Convener:** Bernard Kuntzmann

16:05-16:30

Development of an individually adjustable nozzle cooling system for optimization of the strip flatness for ultra-thin precision strips: state of the art and evaluation of the solution approaches

Speaker

Nico RADEMACHER

16:30-16:55

Investigation methods for the determination of flow topography on horizontal surfaces in spray nozzle fields

Speaker

Jan HOF

16:55-17:20

Design of cooling sections for heat treatment based on laboratory measurements of heat transfer coefficient

Speaker

Petr KOTRBACEK

17:20

Thursday 8 September

09:00

HEAT TREATMENT: Sören SEGERBERG memorial Symposium

Session | **Location:** Room 1 - SALZBURG | **Convener:** Eva Troell

09:00–09:25 **Quenching for the future - In memoriam of Sören Segerberg**

Speaker

Eva TROELL

09:25–09:50 **Born of SmartQuench - In Memoriam of Dr. Soren Segerberg**

Speaker

Imre FELDE

09:50–10:15

An Overview of Researches and Standardization Activities on Test Systems for Quenchant Characterization in Japan

Speaker

Kyozo ARIMOTO

10:15–10:40

Advanced developments in the field of liquid quenchant's State of technique - New Requirements - Technical Perspectives

Speaker

Rainer BRAUN

10:40

11:00

HEAT TREATMENT: Furnace equipment & Process Control

Session | **Location:** Room 2 - WOLFGANGSEE | **Convener:** Klaus Buchner

11:00–11:25

Technological Shift : from mesh-belt furnaces to a clean, compact and automated production

Speaker

Patrick POULOUX

11:25–11:50

The ISO 20431 standard: a new quality standard for heat treatment workshops

Speaker

Marc BUVRON

11:50–12:15

Intelligent Heat Treatment with digital Solutions

Speaker

Thomas HEINRICH

12:15–12:40

Smart sensors fulfilling the promise of the de-carbonization and IoT

Speakers

Ivica NUJIC, Uwe SCHERF

12:40

11:00

HEAT TREATMENT: Sören SEGERBERG memorial Symposium**Session** | **Location:** Room 1 - SALZBURG | **Convener:** Donald MacKenzie

11:00-11:25

Quenching with Aqueous Polymer Solutions**Speaker**

Thomas LÜBBEN

11:25-11:50

Comparison of high-severity quenchants for low-carbon steels**Speaker**

Lauralice CAMPOS FRANCESCHINI CANALE

11:50-12:15

Current Investigations at Quenching Research Centre**Speaker**

Darko LANDEK

12:15-12:40

Characterization of Polymer Quenchants - Influence of Agitation**Speaker**

Donald MACKENZIE

12:40