



# 17<sup>th</sup> INTERNATIONAL FOUNDRYMEN CONFERENCE

Hi-tech casting solution and knowledge based engineering

Opatija, May 16<sup>th</sup>-18<sup>th</sup>, 2018

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University of Zagreb  
Faculty of Metallurgy  
Sisak, Croatia



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University of Ljubljana  
Faculty of Natural Sciences and  
Engineering  
Ljubljana, Slovenia



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University North  
Koprivnica, Croatia



Sveučilište  
Sjever

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ELKEM AS  
Norway



organize

# 17<sup>th</sup> INTERNATIONAL FOUNDRYMEN CONFERENCE

with motto

Hi-tech casting solution and knowledge based  
engineering

## PROGRAMME

Opatija, May 16<sup>th</sup>-18<sup>th</sup>, 2018



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## WEDNESDAY / May 16<sup>th</sup>, 2018 Exhibition Hall

18:00 – 20:00	REGISTRATION OF PARTICIPANTS
20:00 –	WELCOME COCKTAIL

## THURSDAY / May 17<sup>th</sup>, 2018 Conference Hall Bellavista

08:00 – 09:00	REGISTRATION OF PARTICIPANTS
09:00 – 09:30	OPENING OF THE CONFERENCE

### SPECIAL PLENARY LECTURES SECTION

Moderators: Zdenka Zovko Brodarac, Gordana Gojsević Marić, Primož Mrvar

09:30 – 10:00	<b>ANDREW TURNER</b> THE GLOBAL CASTINGS INDUSTRY
10:00 – 10:40	<b>JOHN CAMPBELL</b> FUNDAMENTAL QUALITY ISSUES IN CASTINGS
10:40 – 10:50	<b>COMMERCIAL PRESENTATION</b> <b>GOLDEN SPONSOR –</b> LABTIM ADRIA d.o.o., Zagreb (HR)

### SPECIAL PLENARY LECTURES SECTION

Moderators: Zdenka Zovko Brodarac, Gordana Gojsević Marić, Primož Mrvar

10:50 – 11:20	<b>WITOLD KAZIMIERZ KRAJEWSKI</b> , ALAN LINDSAY GREER, PAWEŁ KRZYSZTOF KRAJEWSKI TOWARDS STRUCTURAL AND DIMENSIONAL STABILITY OF SELECTED AlZn-BASED CAST ALLOYS
11:20 – 11:50	<b>IULIAN RIPOSAN</b> , STELIAN STAN, MIHAI CHISAMERA HIGH Si / Si-Mo DUCTILE CAST IRONS
11:50 – 12:00	<b>COMMERCIAL PRESENTATION</b> <b>GOLDEN SPONSOR –</b> MIKROLUX d.o.o., Zaprešić (HR)
12:00 – 12:30	COFFEE BREAK

### INVITED & ORAL LECTURES SECTION

Moderators: Rebeka Rudolf, Ladislav Lazić

12:30 – 12:50	<b>IVETA VASKOVÁ</b> , MARTIN CONEV INFLUENCE FACTORS ON STORAGE ABILITY OF INORGANIC CORES
12:50 – 13:10	<b>ZDRAVKO SCHAUPERL</b> , AMIR ČATIĆ, MATEJA ŠNAJDAR, MARTIN BALOG, PETER KRIŽIK FROM IDEA TO PATENT: DEVELOPMENT OF INNOVATIVE BIOMEDICAL MATERIAL FOR DENTAL IMPLANTS
13:10 – 14:00	<b>ROUND TABLE</b> <b>FUNDAMENTAL QUALITY ISSUES IN CASTINGS</b> Moderators: John Campbell, Zdenka Zovko Brodarac Representatives of foundries, scientific and research departments
14:00 – 16:00	CONFERENCE LUNCH



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## THURSDAY / May 17<sup>th</sup>, 2018 Conference Hall Bellavista

### INVITED LECTURES & ORAL PRESENTATION SECTION

Moderators: Witold Kazimierz Krajewski, John Campbell

16:00 – 16:20	<b><u>VARUŽAN KEVORKIJAN</u></b> , PETER CVAHTE, SARA HMELAK, VUKAŠIN DRAGOJEVIĆ, BORISLAV HOSTEJ, IRENA LESJAK, BRANKO HMELAK, DARJA VOLŠAK OPTIAI-AN INDUSTRIAL GENERIC TOLL FOR DATA-DRIVEN MODELLING OF PRODUCTION CHAIN AND PROPERTIES OF THE END-PRODUCTS, APPLICATION IN WROUGHT ALUMINIUM ALLOYS DEVELOPMENT AND PRODUCTION OF SEMIS
16:20 – 16:40	<b><u>PRIMOŽ MRVAR</u></b> , GREGA GORŠE, ALMIR MAHMUTOVIČ, MITJA PETRIČ MASTER OF THE COMPLEX CASTINGS IN THE TECHNOLOGY OF HIGH PRESSURE DIE-CASTING
16:40 – 17:00	<b><u>FRANJO KOZINA</u></b> , ZDENKA ZOVKO BRODARAC, MITJA PETRIČ ANALYSIS OF THE LOW ENERGY LAYERING FRACTURE IN Al-2.5Mg-0.7Li ALLOY
17:00 – 17:10	<b>COMMERCIAL PRESENTATION</b> KONTROLTEST INTERNATIONAL d.o.o. (Member of TROKUT TEST GROUP), Zagreb (HR)
17:10 – 17:40	<b>COFFEE BREAK</b>

### INVITED LECTURES & ORAL PRESENTATION SECTION

Moderators: Zdravko Schauerl, Iveta Vaskova

17:40 – 18:00	<b><u>VLADIMÍR KRUTIŠ</u></b> INDUSTRY CHALLENGES CONNECTED WITH DIGITAL TRANSFORMATION
18:00 – 18:20	TOMISLAV LESIČAR, <b><u>ZDENKO TONKOVIĆ</u></b> , JURICA SORIĆ, PREDRAG ČANŽAR EXPERIMENTAL AND NUMERICAL MODELING OF HETEROGENEOUS MATERIALS
18:20 – 18:40	<b><u>SANJA ŠOLIĆ</u></b> , BOJAN PODGORNIK, ZDRAVKO SCHAUPERL, MATJAŽ GODEC, VLADO TROPŠA WEAR BEHAVIOUR OF TiAlN COATING DEPOSITED ON DEEP CRYOGENIC TREATED HIGH SPEED STEEL SUBSTRATE
18:40 – 18:50	<b>TECHNICAL PRESENTATION</b>
21:00 –	<b>CONFERENCE GALA DINNER</b>

## SPONSOR EXHIBITION

09:00 – 19:00	<b>THURSDAY / May 17<sup>th</sup>, 2018</b>	Exhibition Hall in front of Conference Hall Bellavista
09:00 – 17:00	<b>FRIDAY / May 18<sup>th</sup>, 2018</b>	



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## FRIDAY / May 18<sup>th</sup>, 2018 Conference Hall Bellavista

### ORAL PRESENTATION SECTION

Moderators: Varužan Kevorkijan, Iulian Riposan

09:00 – 09:20	BOŽO SMOLJAN, <u>DARIO ILJKIĆ</u> , SUNČANA SMOKVINA HANZA, LOVRO ŠTIC, LUCIANO GRŽINIĆ, GORAN VRATOVIĆ COMPUTER SIMULATION OF CONTROLLED COOLING OF CONTINUOUS CASTED AND ROLLED STEEL BAR
09:20 – 09:40	<u>REBEKA RUDOLF</u> , LIDIJA ZORKO, DRAGANA STOJIĆ, VESNA ŠTAGER, PETER MAJERIČ MICROSTRUCTURE CHARACTERISTICS OF GOLD ALLOYS AND PROCEDURES FOR CORROSION PROTECTION
09:40 – 10:00	<u>DRAGAN MANASIJEVIĆ</u> , TAMARA HOLJEVAC GRGURIĆ, LJUBIŠA BALANOVIĆ, MILAN GORGIEVSKI, UROŠ STAMENKOVIĆ, NIKOLA KOSTIĆ, MIRKO GOJIĆ EVALUATION OF MICROSTRUCTURE AND TRANSFORMATION TEMPERATURES OF THE Cu-Al-Mn SHAPE MEMORY ALLOYS
10:00 – 10:30	<b>COFFEE BREAK</b>

### INVITED LECTURES & ORAL PRESENTATION SECTION

Moderators: Dragan Manasijević, Maja Vončina

10:30 – 10:50	<u>DARKO LANDEK</u> INCREASING THE VALUE OF CASTINGS BY APPLYING SURFACE ENGINEERING PROCESSES AND KNOWLEDGE BASED ENGINEERING
10:50 – 11:10	<u>MATIC ŽBONTAR</u> , JERNEJ KOVAČIČ PREVENTION OF CHUNKY GRAPHITE FORMATION AND OPTIMISING THE PRODUCTION OF FERRITIC DUCTILE CAST IRON WITH HIGHER CONTENT OF SILICON
11:10 – 11:30	<u>MITJA PETRIČ</u> , PRIMOŽ MRVAR, SEBASTJAN KASTELIC GRAPHITE SHAPE DETERMINATION BY ELECTRICAL RESISTIVITY MEASUREMENTS OF CAST IRONS
11:30 – 12:00	<b>BREAK</b>

### ORAL PRESENTATION SECTION

Moderators: Dario Iljkić, Darko Landek

12:00 – 12:20	<u>AUGUSTÍN VARGA</u> , JÁN KIZEK, GUSTÁV JABLONSKÝ, LADISLAV LAZIĆ, RÓBERT DZURŇÁK INFLUENCE OF THE DIAMETER OF THE BORE OF THE COMBUSTIBLE MIXTURE ON THE TEMPERATURE FIELD IN THE AGGREGATE FOR THE MELTING OF ALUMINUM WASTE – SKIMS
12:20 – 12:40	<u>BRANKO BAUER</u> , IVANA MIHALIC POKOPEC, INES MANCE, IVAN MARASOVIĆ, BORIS CRNOBRNJA HOT TEARING TESTING OF ALUMINIUM ALLOYS USING RING CASTING METHOD
12:40 – 13:00	DANKO ČORIĆ, <u>MATIJA SAKOMAN</u> , BOŽO RENIĆ HARDNESS AND FRACTURE TOUGHNESS OF A CEMENTED CARBIDE
13:00 – 13:20	<u>ANITA BEGIĆ HADŽIPAŠIĆ</u> , SANDRA BRAJČINOVIĆ, GORDANA GOJSEVIĆ MARIĆ, ZDENKA ZOVKO BRODARAC INFLUENCE OF MEDIUM AND MICROSTRUCTURE ON CORROSION BEHAVIOR OF GRAY CAST IRON
13:20 – 15:00	<b>CONFERENCE LUNCH</b>



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ORAL PRESENTATION SECTION	
Moderators: Augustín Varga, Irena Žmak	
15:00 – 15:20	<b>IGOR JAJČINOVIĆ</b> , MATIJA BOROŠIĆ, IVAN BRNARDIĆ, IVANA GRČIĆ, STANISLAV KURAJICA COMPARISON OF PHOTOCATALYST PREPARATION BY TiO <sub>2</sub> DEPOSITION ON A SUPPORT USING DIFFERENT METHODS
15:20 – 15:40	<b>MILAN VUKŠIĆ</b> , IRENA ŽMAK THE INFLUENCE OF TIRON ON THE RHEOLOGICAL PROPERTIES OF ALUMINA SUSPENSIONS WHICH CONTAIN WASTE ALUMINA POWDER
15:40 – 16:00	<b>SANDRA BRAJČINOVIĆ</b> , ANITA BEGIĆ HADŽIPAŠIĆ, JOŽEF MEDVED TOOL STEELS - CLASSIFICATION AND BASIC PROPERTIES
16:00 – 17:30	<b>STUDENT SECTION / Conference Hall Bellavista</b> <b>Moderators: Natalija Dolić, Stjepan Kožuh</b>
17:30	<b>CONFERENCE CLOSING</b>



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## POSTER SECTION

Exhibition Hall in front of Conference Hall Bellavista

**THURSDAY, May 17<sup>th</sup>, 2018: 12:00 – 12:30 // 17:10 – 17:40**

**Moderators: Martina Lovrenić-Jugović, Ljubiša Balanović**

**FRIDAY, May 18<sup>th</sup>, 2018: 10:00 – 10:30 // 11:30 – 12:00**

**Moderators: Anita Begić Hadžipašić, Miroslav Sokić**

**Authors should be available for presentation and individual talk on**

**BOJAN BAŠIĆ**, VERA REDE, ZRINKA ŠVAGELJ

ATMOSPHERIC CORROSION OF CORTEN STEEL IN THE RURAL, INDUSTRIAL AND MARINE ATMOSPHERE

DINO BOGDANIĆ, LUKA MAHENIĆ, **ŽELJKO ALAR**

COMPARISON OF BRASS YOUNG'S MODULUS TESTING RESULTS OBTAINED THROUGH CONVENTIONAL AND INDENTATION METHODS

**IVICA BULJETA**, ZDENKA ZOVKO BRODARAC, ANA BEROŠ

THE MECHANISM NUCLEATION AND PROPAGATION OF HOT TEARING DUE TO THE FORMATION OF INITIAL MICROPORES ON THE TRIPLE JUNCTION OF GRAIN BOUNDARIES IN THE ALLOY AlMgSi

**MATIJA BUŠIĆ**, ZORAN KOŽUH, IVICA GARAŠIĆ

INFLUENCE OF THE TOOL TRAVEL SPEED AT FRICTION STIR PROCESSING OF ALUMINIUM ALLOY AlCu4Mg1 ON TEMPERATURE FIELD AND MACROSTRUCTURE DEVELOPMENT OF THE WELDED JOINT

**GUSTÁV JABLONSKÝ**, AUGUSTÍN VARGA, JÁN KIZEK, LADISLAV LAZIĆ, RÓBERT DZURŇÁK

HEAT EXCHANGE DURING MELTING OF Al - SCRAP IN SAS FURNACE

**ANTONIO DOMINIK JELENSKI**, MERIMA MUSLIĆ, VERA REDE

TESTING OF ABRASION WEAR RATE ON TECHNICALLY PURE ALUMINUM AND Al ALLOY AA 2024

**SEBASTJAN KASTELIĆ**, ALMIR MAHMUTOVIĆ, MITJA PETRIČ, PRIMOŽ MRVAR

OPTIMIZATION OF CASTABILITY TEST FOR GRAY IRON USING FEM CALCULATION

**STJEPAN KOŽUH**, VLADO DŽOMBA, TAMARA HOLJEVAC GRGURIĆ, IVAN JANDRLIĆ, BORUT KOSEC, MIRKO GOJIĆ

PROPERTIES OF CONTINUOUSLY CASTED Cu-Al ALLOY

**MARTINA LOVRENIĆ-JUGOVIĆ**, DRAGAN PUSTAIĆ, LADISLAV LAZIĆ, JAKOV BALETA

INFLUENCE OF GRAPHITE NODULARITY ON PLASTIFICATION AROUND CRACK TIP OF DUCTILE IRON

**IVANA MANASIJEVIĆ**, LJUBIŠA BALANOVIĆ, TAMARA HOLJEVAC GRGURIĆ, MILAN GORGIEVSKI, DUŠKO MINIĆ, MILENA PREMOVIĆ

MICROSTRUCTURE AND THERMAL ANALYSIS OF THE LOW MELTING Bi-In EUTECTIC ALLOYS

**VASO MANOJLOVIĆ**, MILORAD GAVRILOVSKI, ŽELJKO KAMBEROVIĆ, DEJAN MOMČILOVIĆ

COMMON FAILURES IN ALUMINOTHERMIC WELDING PROCESS AND PROPOSAL FOR THEIR PREVENTION

**BRANISLAV MARKOVIĆ**, ALEKSANDRA PATARIĆ, MIROSLAV SOKIĆ, ZORAN JANJUŠEVIĆ, BRANKA JORDOVIĆ

ALUMINIUM ALLOY AS CAST MICROSTRUCTURE OBTAINED UNDER THE INFLUENCE OF ELECTROMAGNETIC FIELD

DUŠAN MILISAVLJEVIĆ, DUŠKO MINIĆ, **MILENA PREMOVIĆ**, DRAGAN MANASIJEVIĆ

EXPERIMENTAL STUDY OF THE TERNARY Ag-Ge-In SYSTEM

**MERIMA MUSLIĆ**, VESNA MAKSIMOVIĆ, ILIJA BOBIĆ

CASTING AN Al ALLOY 2024 + 4% FLY ASH COMPOSITE SUITABLE FOR PROCESSING BY PLASTIC DEFORMATION



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**DANIEL NOVOSELOVIĆ**, ŠTEFANIJA KLARIĆ, DAMIEN J. HILL  
A COST EFFECTIVE APPROACH TO PRODUCTION OF INVESTMENT CASTING WAX MODELS BY ADDITIVE MANUFACTURING

**ZRINKA ŠVAGELJ**, IVA KARAČIĆ, DAMIR MUSLIĆ  
EFFECT OF ANNEALING ON HARDNESS AND TOUGHNESS OF DUPLEX STAINLESS STEEL

**MAJA VONČINA**, JOŽEF MEDVED, LINA JERINA, IRENA PAULIN, PETER CVAHTE, MATEJ STEINACHER  
INFLUENCE OF GRAIN REFINEMENT STRUCTURE ON THE INOCULATION EFFICIENCY IN WROUGHT AA 6182 ALLOY

**IRENA ŽMAK**, KREŠIMIR GRILEC  
ANCIENT LEAD METALLURGY AND THE APPLICATION OF LEAD ARTIFACTS IN ANCIENT TIMES

### STUDENT SECTION / Conference Hall Bellavista

FRIDAY, May 18<sup>th</sup>, 2018: 16:00 – 17:30

Moderators: Natalija Dolić, Stjepan Kožuh

**IVANA BUNJAN**, VLADO DŽOMBA, ZDENKA ZOVKO BRODARAC  
EVALUATION OF THE CASTING QUALITY USING NUMERICAL SIMULATION

**MARTINA KESNER**, **MATIJA PISK**, MATIJA SAKOMAN, ŽELJKO ALAR  
HARDNESS OF MULTILAYER COATINGS

**DON VITO LUKŠIĆ**, TAHIR SOFILIĆ  
MONITORING OF RADIONUCLIDES IN STEEL SCRAP INTENDED FOR RECYCLING IN STEEL MILLS AND FOUNDRIES

**BARBARA TUBIĆ**, MATEA SEKULIĆ, NATALIJA DOLIĆ  
RED SLUDGE RECOVERY

**ANA MARIJA VUKOVIĆ**, TAMARA HOLJEVAC GRGURIĆ  
ELECTROSPUNNING OF FIBROUS CARRIER FOR TISSUE ENGINEERING ON 3D PRINTED COLLECTORS

**MAŠA ŽBONTAR**, MITJA PETRIČ, MAJA VONČINA, JANKO ČEVKA, JOŽEF MEDVED  
THERMAL AND CHEMICAL STABILITY OF SOL-GEL COATINGS WITH ZIRCON FILLER