

SCIENTIFIC PROGRAM

Tuesday – 13 September

Micro- and Nanojoining (N1)		Chairs: S. Agathopoulos/N. Sobczak
	09:00–09:20	Welcome remarks
J. Janczak-Rusch	09:20–10:00	MATERIALS DEVELOPMENT FOR MICRO- AND NANO-JOINING TECHNOLOGIES
J. Zimmerman	10:00–10:20	THERMAL RIDGES – ‚NANOMOUNTAINS‘ IN DEFORMED NICKEL
M. Trybula	10:20–10:40	BEHAVIOUR OF GRAPHENE ON COPPER SURFACE UPON WETTING WITH LIQUID TIN
Coffee: 10:40–11:10		
Processing (P1)		Chairs: J. Narciso/G. Kaptay
M. Caccia	11:10–11:50	SYNTHESIS AND PROPERTIES OF CERMETS FOR HIGH-TEMPERATURE APPLICATIONS PRODUCED VIA SPONTANEOUS MELT INFILTRATION
P. Shen (on-line)	11:50–12:10	CONSTRUCTION OF HIGH-PERFORMANCE NACRE-INSPIRED METAL-CERAMIC COMPOSITES VIA ICE TEMPLATING AND MELT INFILTRATION
D. Geleta	12:10–12:30	EFFECT OF PROCESS PARAMETERS ON FLUIDIZATION AND AGGLOMERATION BEHAVIOR OF IRON ORE FINES
Lunch: 12:30–14:30		
Surfaces and Interfaces (S1)		Chairs: F. Valenza/J. Wojewoda-Budka
J. Morgiel	14:30–15:10	EFFECT OF LOCAL CONDITIONS ON PHASE TRANSFORMATIONS DURING REACTIVE WETTING OF MgO SUBSTRATE WITH LIQUID ALUMINIUM
X. Xiao (on-line)	15:10–15:30	STATISTICAL MODELING OF THE INFLUENCE OF OXYGEN ON THE SURFACE TENSION OF BINARY ALLOY
G. Kaptay	15:30–15:50	A COHERENT SET OF MODEL EQUATIONS FOR VARIOUS SURFACE AND INTERFACE ENERGIES IN SYSTEMS WITH LIQUID AND SOLID METALS AND ALLOYS
P. Czaja	15:50–16:10	PHASE EVOLUTION AT THE LIQUID SOLDER Sn–Zn–Ag–Al/Cu INTERFACE
Coffee: 16:10–16:30		
POSTER Session and Entertainment		
16:30–19:00		

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Poster Session: 16:30–19:00

Wetting

- W_01** MICROSTRUCTURAL PHENOMENA AT INTERFACES OF LIQUID Sn-Zn BASED SOLDERS WITH Ni SUBSTRATE
Aleksandra Dybel
- W_02** WETTING AND INTERFACIAL INTERACTIONS OF TiAl-X (X = Fe, Ni) ALLOYS ON ALUMINA
Fabrizio Valenza
- W_03** GRAIN BOUNDARY WETTING PHENOMENA IN THE EZ33A MAGNESIUM-BASED ALLOY
Boris Straumal
- W_04** INVESTIGATION OF WETTING PROCESSES AND INTERPHASE INTERACTION IN THE SYSTEM OF Sn - NiO POWDER
Yuriy Plevachuk
- W_05** EFFECT OF hBN COATING ON WETTABILITY AND REACTIVITY BETWEEN LIQUID MAGNESIUM AND COPPER SUBSTRATE
Jerzy J. Sobczak
- W_06** HIGH-TEMPERATURE INTERACTION OF LIQUID MAGNESIUM WITH STEEL SUBSTRATES
Paweł Darlak
- W_07** PULSED CURRENT-DRIVEN WETTING OF 3YSZ BY LIQUID COPPER AND ULTRAFAST JOINING WITH NICKEL
Ping Shen
- W_08** WETTING AND PECULIARITIES OF CONTACT INTERACTION IN THE NiTi-Cr(-Ti, Zr)B₂ SYSTEMS
Olena Poliarus
- W_09** PECULIARITIES OF CONTACT INTERACTION AND STRUCTURE FORMATION DURING WETTING OF ZIRCONIUM AND CHROMIUM DIBORIDES WITH NiAl AND NiTi INTERMETALLICS
Olena Poliarus
- W_10** IN SITU SYNTHESIS OF MeC TYPE CERAMIC PHASES IN THE ASPECT OF HIGH-TEMPERATURE WETTABILITY EXAMINATIONS
Łukasz Szymański
- W_11** WETTABILITY AND INTERFACIAL MICROSTRUCTURE OF NEW GENERATION LEAD-FREE SOLDER ALLOYS ON COPPER SUBSTRATE
Maciej Sobolewski
- W_12** WETTING OF NANOCOATINGS ON SILICON OXIDE BY METAL SOLDERS
Vitaliy Krasovskyy
- W_13** WETTING BEHAVIOUR AND REACTIVITY OF LIQUID COPPER ON 304 AND 316L STAINLESS STEELS SURFACES
Anna Wierzbicka-Miernik

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- W_14** INVESTIGATION OF THE EFFECT OF HEAT EXPOSURE ON THE WETTING OF LASER BEAM TREATED ALUMINIUM SHEETS
Ferenc Tajti
- W_15** GRAIN BOUNDARY WETTING IN THE W-Ni ALLOYS
Brigitte Baretzky
- W_16** HIGH-TEMPERATURE INTERACTION OF LIQUID MAGNESIUM WITH A PURE SILVER SUBSTRATE
Sylwia Terlicka
- W_17** NEW SOLDER, BASED ON Sn-Zn EUTECTIC WITH ADDITION OF Ag, Al AND Li
Janusz Pstruś

Surfaces and Interfaces

- S_01** EXTENSION OF THE GIBBS-DUHEM EQUATION TO PARTIAL MOLAR SURFACE THERMODYNAMIC PROPERTIES OF SOLUTIONS
George Kaptay
- S_02** INVESTIGATION OF INTERFACIAL TENSION BETWEEN SILICON STEEL AND ALUMINA
Jiwoo Park
- S_03** A DIP DIVE INTO THE THERMAL AND PHYSICO-CHEMICAL PROPERTIES OF COPPER SLAGS
Aleksandra Kalęba
- S_04** STRUCTURAL CHARACTERIZATION OF INTERFACES FORMED BETWEEN MOLTEN Al-Si ALLOY AND TiB₂ SUBSTRATES
Halyna Prykhodko
- S_05** REACTIVITY BETWEEN SAC305 ALLOY AND ELECTROLESS Ni-P AND Ni-P-Re COATINGS ELECTROLESS PLATED ON COPPER
Izabela Kwiecień
- S_06** COPPER/STEEL INTERACTION IN EXPLOSIVE WELDING PROCESS – IN-DEPTH ANALYSIS OF REMELTING AREAS THROUGH THE WETTABILITY TESTS
Marta Janusz-Skuza
- S_07** INTERFACIAL PHENOMENA BETWEEN GRAPHENE ON Cu SUBSTRATE COATED BY Ni, Cu, W LAYER, AND LIQUID Ga-Sn-Zn ALLOY
Tomasz Gancarz

Processing

- P_01** GRAIN BOUNDARY OXIDE LAYERS IN THE NdFeB-BASED PERMANENT MAGNETS
Brigitte Baretzky
- P_02** DETERMINATION OF HIGH-TEMPERATURE CORROSION MECHANISM OF NOVEL Cr-FREE REFRACTORY MATERIAL FOR THE COPPER INDUSTRY BY EXPERIMENTAL COUPLED WITH SIMULATION APPROACH
Ilona Jastrzębska
- P_03** MECHANICAL MIXING OF METALS DURING HIGH-PRESSURE TORSION
Brigitte Baretzky
- P_04** METAL-CERAMIC PROSTHETIC RESTORATIONS PRODUCED BY SELECTIVE LASER MELTING
Simeon Agathopoulos

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- P_05** MANUFACTURE OF BRASS COMPONENT USING ADDITIVE TECHNOLOGY
Javier Narciso
- P_06** PRODUCTION OF PURE IRON STRIP SPECIMENS BY ELECTRODEPOSITION FROM A CHLORIDE BATH FOR USE IN TENSILE TESTS
Krasimir Kolev
- P_07** PHENOMENA OBSERVED AT A1050/S355J2N INTERFACE FORMED DUE TO EXPLOSIVE WELDING SUPPORTED BY AN IN-DEPTH ANALYSIS OF LIQUID ALUMINIUM WETTABILITY TEST ON S355J2N CARBON STEEL
Monika Bugajska
- P_08** FORMATION OF AN INTERFACIAL BOUNDARY WHEN BRAZING DISSIMILAR MATERIALS KOVAR - Ti(Mo)
Svitlana Maksymova
- P_09** PHASE COMPOSITION, MICROSTRUCTURE, AND SURFACE HARDNESS OF SURFACE PLASMA GAS NITRIDED Ti-10V-2Fe-3Al WITH INDIRECT PLASMATRON
Deyan Veselinov
- P_10** A STUDY ON THE STICKING PHENOMENON DURING IRON ORE REDUCTION BY HYDROUS GAS
Eunju Kim
- P_11** THE INFLUENCE OF TiC AND TiB₂ PARTICLES ON THE MICROSEGREGATION AND MICROSTRUCTURE EVOLUTION OF CAST IN718 ALLOY
Qinglong Zhao
- P_12** STUDY ON THE PHASE COMPOSITION AND MICROSTRUCTURE OF Ti-8Al-1Mo-1V AFTER SURFACE PLASMA GAS NITRIDING WITH INDIRECT PLASMATRON
Deyan Veselinov
- P_13** HIGH-TEMPERATURE SURFACE TENSION PHENOMENA IN VISCOUS GLASSES TO PRODUCE CERAMIC FOAMS
Sevasteia Maria Gkiouzel
- P_14** REACTIONS BETWEEN Al₂O₃-SiO₂ REFRACTORY CERAMICS DOPED WITH ALKALINE-EARTHS AND MOLTEN Al
Simeon Agathopoulos
- P_15** REACTIONS BETWEEN MOLTEN ARTIFICIAL SLAGS OF OXIDE GLASSES AND REFRACTORY CERAMICS OF MgO-C DOPED WITH NANO-Al₂O₃ AND TiO₂
Sevasteia Maria Gkiouzel
- P_16** REFRACTORY BEHAVIOR OF NOVEL MgO-C CERAMICS, DOPED WITH NANO-MgO, TiO₂ AND ZrO₂, TOWARDS ARTIFICIAL OXIDE SLAGS
Simeon Agathopoulos

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Wednesday – 14 September

Micro- and Nanojoining (N2)		Chairs: J. Janczak-Rusch/J. Lee
V. Turlo	09:00–09:40	ATOMISTIC MODELING OF IMMISCIBLE NANO-MULTILAYERS FOR NANOJOINING APPLICATIONS BY LIQUID-ASSISTED PROCESSES
Qinglong Zhao (on-line)	09:40–10:00	THE MICROSTRUCTURE AND TENSILE PROPERTIES OF CAST Ti64 ALLOY CONTAINING TRACE TiC NANOPARTICLES
O. Belhaddad	10:00–10:20	STUDY OF INTERFACIAL INTERACTIONS BETWEEN INDIUM BUMPS AND GOLD WETTING LAYERS FOR PHOTONIC PACKAGING APPLICATIONS
A. Druzhinin (on-line)	10:20–10:40	THE EFFECT OF INTERFACE STRESS ON THE GRAIN BOUNDARY GROOVING IN NANOMATERIALS: APPLICATION TO THE THERMAL DEGRADATION OF Cu/W NANO-MULTILAYERS
Coffee: 10:40–11:10		
Wetting (W1)		Chairs: T. Matsushita/A. Sypień
M. Storzhenko	11:10–11:50	WETTING AND INTERFACIAL REACTIVITY IN FeNiCrBSi-MoC-MeB ₂ SYSTEMS
E. Rabkin	11:50–12:10	SOLID-STATE DEWETTING OF THIN METAL FILMS ON ROUGH SUBSTRATES
J. Lee	12:10–12:30	IN SITU OBSERVATION OF DYNAMIC WETTING OF LIQUID Cu ON AN ULTRA-LOW CARBON STEEL PLATE
Lunch: 12:30–14:30		
15:50–19:00	Bus guided tour of Krakow's Old Town (the meeting point-in front of Novotel Kraków City West Hotel; return way on your own)	
19:00–22:00	Conference dinner (Szara Kazimierz Restaurant, 39 Szeroka Street, Kraków)	

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Thursday – 15 September

Surfaces and Interfaces (S2)

Chairs: *M. Storozhenko/V. Turlo*

O. Dezellus	09:00–09:40	SURFACE TENSION, INTERFACIAL SEGREGATION, AND GRAPHITE SHAPE IN CAST IRONS
B. Reiplinger	09:40–10:00	SURFACE TENSION OF LIQUID Ti, V AND THEIR BINARY ALLOYS MEASURED BY ELECTROMAGNETIC LEVITATION
M. Levi	10:00–10:20	DIFFUSION-INDUCED RECRYSTALLIZATION DURING THE EARLY STAGES OF SOLID-STATE DEWETTING OF Ni-Pt BILAYERS
I. Jastrzębska	10:20–10:40	HIGH-TEMPERATURE INTERACTIONS BETWEEN BASIC REFRACTORY AND COPPER SLAGS USING HOT STAGE MICROSCOPY AND OTHER EXPERIMENTAL METHODS

Coffee: 10:40–11:10

Wetting (W2)

Chairs: *E. Rabkin/M. Saternus*

B. Straumal	11:10–11:30	GRAIN BOUNDARY WETTING PHENOMENA IN THE HIGH ENTROPY ALLOYS
F. Valenza	11:30–11:50	ADVANCING AND RECEDING CONTACT ANGLES OF LIQUID METALS ON A TILTING PLATE
Y. Plevachuk	11:50–12:10	EFFECT OF METAL DEPOSITED NANOPARTICLES AND THE NANOPARTICLE DOPED FLUX ON SOLDER JOINTS BETWEEN LEAD-FREE SOLDERS AND METAL SUBSTRATES
A. Bigos	12:10–12:30	WETTING BEHAVIOUR AND INTERFACIAL REACTIVITY OF TIN SOLDER WITH NANOCRYSTALLINE Ni AND Ni-Mo COATINGS

Lunch: 12:30–14:30

Processing (P2)

Chairs: *F. Hodaj/A. Bigos*

T. Matsushita	14:30–14:50	A MODIFIED CAPILLARY MODEL FOR THE PENETRATION OF THE NON-WETTING POROUS MEDIUM SYSTEM
M. Saternus	14:50–15:10	BENEFITS AND LIMITATIONS OF THE USE OF Pb, Sn AND Bi ALLOYING ELEMENTS IN THE HOT DIP GALVANIZING BATH
J. Narciso	15:10–15:30	REACTIVE INFILTRATION OF MoO ₃ TO PRODUCE MESOPOUROUS Mo ₂ C
D. Migas	15:30–15:50	INDUCTION VACUUM MELTING AND MICROSEGREGATION OF γ - γ' Co-BASED SUPERALLOYS
A. Kuś	15:50–16:10	PRELIMINARY STUDY OF SELECTIVE LASER MELTING PARAMETERS FOR PROCESSING CO-BASED ALLOY WITH HIGH GLASS FORMING ABILITY

Coffee: 16:10–16:40

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Processing (P3)

Chairs: B. Straumal/S. Terlicka

R. Asthana (on-line)	16:40–17:20	JOINING OF SILICON-BASE CERAMICS AND COMPOSITES TO HIGH-TEMPERATURE ALLOYS VIA LIQUID-PHASE BONDING
A. Sypień	17:20–17:40	MICROSTRUCTURAL AND MECHANICAL CHARACTERIZATION OF THE INTERFACIAL PHENOMENA OCCURRING IN BRAZING Ti-6Al-4V ALLOY USING TiZrCuPd AMORPHOUS RIBBONS
B. Yanachkov	17:40–18:00	SAMPLE PREPARATION FOR EXPERIMENTAL STUDIES OF THE MECHANICAL RELAXATION OF PURE IRON IN THE PRESENCE OF HYDROGEN
K. Janus	18:00–18:20	MICROSTRUCTURAL EVOLUTION STUDY DURING TEMPERING OF A HIGH-CARBON NANOBAINITIC CAST STEEL AFTER CONTROLLED THERMOMECHANICAL TREATMENT
D. Wilk-Kołodziejczyk	18:20–18:40	SELECTION OF THE CHEMICAL COMPOSITION OF INCONEL 740 CASTINGS WITH THE USE OF THE CLASSIFICATION AND NEURAL-FUZZY ALGORITHM

Friday – 16 September

Processing (P4)

Chairs: Yu. Plevachuk/J. Morgiel

L. Xi (on-line)	09:00–09:40	CIRCUMVENTING SOLIDIFICATION CRACKING SUSCEPTIBILITY IN Al-Cu ALLOYS PREPARED BY LASER POWDER BED FUSION
U. Klotz	09:40–10:00	DEVELOPMENT OF NEW ACTIVE BRAZING ALLOYS USING HIGH-THROUGHPUT THERMODYNAMIC CALCULATIONS
Bao Wang (on-line)	10:00–10:20	EFFECT OF SUB-RAPID SOLIDIFICATION ON MICROSTRUCTURE AND MECHANICAL PROPERTIES OF Al-Mg-Si ALLOY FABRICATED BY TWIN-ROLL CASTING
S. Agathopoulos	10:20–10:40	NOVEL EFFECTIVE METHODS TO PRODUCE AlN/Al AND AlN/Cu JOINTS

Coffee: 10:40–11:10

Processing (P5)

Chairs: J. Brillo/P. Czaja

R-F. Guo (on-line)	11:10–11:30	CONSTRUCTION OF NACRE-MIMETIC Al/Al ₂ O ₃ CERAMIC-METAL COMPOSITES WITH A “BRICK-MUD” STRUCTURE VIA BIDIRECTIONAL FREEZE CASTING AND PRESSURE INFILTRATION
T-S. Liu (on-line)	11:30–11:50	ACHIEVING ULTRA-HIGH STRENGTH IN Al-Zn-Mg-Cu Alloy BY TRACE IN SITU NANOPARTICLES IMPROVED MULTISTAGE MICROSTRUCTURES

11:50–12:10 Closing remarks

12:30–14.30 Lunch