



ICPMEE

7-9.09.2022

RYTRO/POLAND

THE INTERNATIONAL CONFERENCE
OF PROCESSES MODELLING AND EXPERIMENTAL ENGINEERING

CONFERENCE PROGRAM

SEPTEMBER 7, 2022 (WEDNESDAY)

- | | |
|---------------|---|
| 9:00 – 10:00 | Registration of participants |
| 10:00 – 11:00 | Official opening ceremony of the conference |
| 11:00 – 12:30 | Plenary session |
| | 1. <i>PROCESS MODELLING STUDIES IN SOLIDIFICATION</i>
<u>ALAN LINDSAY GREER</u> |
| | 2. <i>THE ELECTROCHEMICAL (ECM) AND ELECTRODISCHARGE (EDM)
PROCESSES APPLICATIONS IN SURFACE LAYER PROPERTIES CREATION</i>
<u>ADAM RUSZAJ, MARIUSZ CYGNAR, MARIA CHUCHRO,
KAROLINA FURYK-GRABOWSKA, MARCIN GRABOWSKI</u> |
| | 3. <i>RECYCLING OF PARTICLE-REINFORCED COMPOSITE CASTINGS</i>
<u>MICHAL SZUCKI, JOHANNES SCHOß</u> |
| 13:00 – 14:00 | Lunch break |
| 15:00 – 16:00 | Poster session* |
| 16:00 – 17:30 | Discussion panel |
| 18:45 | Group photo of participants |
| 19:00 | Jubilee of the 50 th anniversary of Professor W. K. Krajewski's work
(Gala dinner) |

SEPTEMBER 8, 2022 (THURSDAY)

7:30 – 9:00 Breakfast

9:00 – 10:30 SCIENTIFIC AND TECHNICAL SESSION IA (ROOM I)

CHAIRMAN: PHILIPPE JACQUET, JAN JEZERSKI

1. **THE PROCESS OF MANUFACTURING AND TESTING THE PROPERTIES OF THE INNOVATIVE TDAE PLASTICIZER AS A COMPONENT FOR THE PRODUCTION OF VEHICLE TIRES**
STEFAN PTAK, BOGUSŁAW CIEŚLIKOWSKI, JANUSZ JAKÓBIEC
2. **INFLUENCE OF CASTING MOULD TEMPERATURE AND PROPERTIES ON SOLIDIFICATION KINETICS AND STRUCTURE OF HIGH-ZINC ALUMINIUM ALLOY**
BEATA GRACZ, PAWEŁ K. KRAJEWSKI, GRZEGORZ PIWOWARSKI, A. LINDSAY GREER, WITOLD K. KRAJEWSKI
3. **PREDICTION OF MECHANICAL PROPERTIES OF ADI USING XGBOOST, CATBOOST, LIGHTGBM, TENSORFLOW**
PAWEŁ MALINOWSKI, DAWID MYSZKA
4. **ALPHINIZING OF PISTON RING INSERTS - PROBLEMS AND CHALLENGES**
JAROSŁAW PIĄTKOWSKI, MICHAŁ SZUCKI, MATEUSZ CZEREPAK
5. **STEEL AND ALUMINIUM JOIN FORCES TO BATTLE COVID-19 PANDEMIC**
AMIR A. SHIRZADI
6. **CORROSION RESISTANCE OF $Mg_{72}Zn_{28}$, $Mg_{66}Zn_{30}Ca_4$ AND $Zn_{92}Mg_6Ca_2$ ALLOYS IN THE SOLUTION CONTENTING CHLORIDE IONS**
ANDRZEJ FIJOŁEK, HALINA KRAWIEC, JANUSZ LELITO

9:00 – 10:30 SCIENTIFIC AND TECHNICAL SESSION IB (ROOM II)

CHAIRMAN: ALDONA GARBACZ-KLEMPKA, MARIUSZ ŁUCARZ

1. **EFFECT OF INOCULATION ON THE STRUCTURE OF CHROMIUM CAST IRON**
JAN MĘDOŃ, M. CZARNY, DARIUSZ KOPYCIŃSKI
2. **APPLICATION OF COMPUTER MODELLING TO DETERMINE THE EFFECT OF TOOLING SHAPE ON AW-5182 ALUMINIUM SHEET STAMPING**
MICHAŁ JĘDRYCHOWSKI, MARIUSZ ŁUCARZ
3. **THE INFLUENCE OF AGING ON BUCKLE STRENGTH LOSS IN AA5182-H48 FOR BEVERAGE CAN ENDS**
PAWEŁ KOKOSZKA, ANDRIJ MILENIN
4. **ANALYSIS OF THE INFLUENCE OF THE SAND MATRIX ON THE PROPERTIES OF MOULDING COMPOUNDS MADE WITH FURAN RESIN INTENDED FOR 3D PRINTING**
DANIEL GRUSZKA, RAFAŁ DAŃKO, MICHAŁ DEREŃ, ANNA WODZISZ
5. **THE INFLUENCE OF Ag_2Te ADDITION ON THERMOELECTRIC PROPERTIES OF BISMUTH TELLURIDE**
SYLWIA DRZEWOWSKA, LAN TIAN-WEY, BOGUSŁAW ONDERKA
6. **DEVELOPMENT OF 3D PRINTING IN THE FOUNDRY INDUSTRY**
MICHAŁ DEREŃ, MARIUSZ ŁUCARZ

10:30 – 10:45 Coffee break

10:45 – 13:15

SCIENTIFIC AND TECHNICAL SESSION IIA (ROOM I)

CHAIRMAN: AMIR SHIRZADI, MARIUSZ CYGNAR

1. **CORROSION RESISTANCE OF HEAT TREATED Ti6Al4V ALLOY**
HALINA KRAWIEC, JAGODA STÓS, ŁUKASZ GONDEK
2. **INFLUENCE OF THE TYPE OF FUEL ON ENVIRONMENTAL POLLUTION AND OPERATING COSTS OF PUBLIC TRANSPORT BUSES**
RADOŚŁAW KANTOR, GRZEGORZ PRZYDATEK, ANDRZEJ RYNIEWICZ
3. **THE IMPORTANCE OF THE GEOMETRY OF THE DOWN SPRUE IN THE GRAVITY CASTING PROCESS**
RAFAŁ DOJKA, JAN JEZERSKI, MICHAŁ SZUCKI
4. **RECOGNITION OF PEOPLE IN AN IOT SYSTEM WITH LIMITED RESOURCES**
DANIEL DROZD, ZENON JABŁOŃSKI, GRZEGORZ LITAWA
5. **ANALYSIS OF FORECASTING PARAMETERS IN TECHNICAL FACILITY CONTROL OF SYSTEMS**
JERZY KOROSTIL, OLESIA AFANASYEVA, OLGA KOROSTIL

10:45 – 13:15

SCIENTIFIC AND TECHNICAL SESSION IIB (ROOM II)

CHAIRMAN: BEATA GRABOWSKA, ADAM RUSZAJ

1. **DEVELOPMENT OF HIGHLY WEAR-RESISTANT CAST STEEL ALLOYS FOR TOOL APPLICATIONS**
JENNIFER KOLASA
2. **APPLICATION OF CAD AND CAE ENGINEERING SOFTWARE TO RECREATE A PREHISTORIC ARTIFACT**
ANDRZEJ FIJOŁEK, PAWEŁ ŻAK, ALDONA GARBACZ-KLEMPKA
3. **MICROSTRUCTURE AND SELECTED MECHANICAL PROPERTIES OF HIGH ENTROPY ALLOYS (HEA) BASED ON ALCOCUFENI**
KONRAD CHRZAN, KAMIL CICHOCKI, MAŁGORZATA GRUDZIEŃ- RAKOCZY, BARBARA KALANDYK, JADWIGA KAMIŃSKA
4. **MULTI-TOOL NUMERICAL SIMULATION APPROACH FOR PU COLD BOX PROCESS**
MOHAMMED SHAKEER KHAN, NATALIA MROWKA, MICHAŁ SZUCKI, CHRISTIAN KUPSCH, MUHAMMAD TALAL ASGHAR
5. **IMPROVING THE KNOCK-OUT PROPERTIES OF MOULDING SANDS WITH AN INORGANIC BINDER**
DAWID HALEJCIO, JAROSŁAW JAKUBSKI
6. **UTILIZATION OF AN HPC CLUSTER TO SIMULATE THE FLOW CONDITIONS IN A GASSING HOOD DURING CORE MANUFACTURING PROCESS**
SIMON GENTHE, ANDREAS ZACH, MICHAŁ SZUCKI
7. **EFFECT OF CAVITATION PHENOMENON ON THE QUALITY OF HIGH-PRESSURE ALUMINIUM ALLOY CASTINGS**
MARCIN BRZEZIŃSKI, JAKUB WIŚNIEWSKI

13:15 – 14:45 Lunch

15:00 – 16:00 **SCIENTIFIC AND TECHNICAL SESSION III (ROOM I)**

CHAIRMAN: BOGUSŁAW CIEŚLIKOWSKI, JANUSZ LELITO

1. **INFLUENCE OF PLUNGER MOTION PROFILE OF HIGH PRESSURE DIE CASTING MACHINE ON THE CASTING COOLING AND SOLIDIFICATION RATE**

KATARZYNA ŻAK, RAFAŁ DAŃKO, WOJCIECH KOWALCZYK, PAWEŁ L. ŻAK

2. **ATLAS EXPERIMENT AT CERN: CHALLENGES AND ACHIEVEMENTS IN THE ERA OF MACHINE LEARNING**

WITOLD PRZYGODA

3. **THE USE OF FEM ANALYZES TO IMPROVE THE ACOUSTIC PROPERTIES OF A SOUND SET BASED ON THE VISATON STELLA LIGHT CONSTRUCTION**

SŁAWOMIR JURKOWSKI

4. **ANALYSIS OF THE INCREASING DIRECT METAL LASER SINTERING PROCESS WITH REGARD TO THE STRENGTH OF THIN WALL ELEMENTS**

PIOTR BAŁ, GRZEGORZ BUDZIK, MAŁGORZATA ZABORNIAK, MATEUSZ KIEŁBICKI, ŁUKASZ KOCHMAŃSKI, MARIUSZ CYGNAR

5. **FORECASTING WEATHER COMPONENTS IN THE FORM OF TIME SERIES USING THE LSTM NETWORK FOR NOWCASTS**

NIKODEM BULANDA, GRZEGORZ LITAWA, MATEUSZ PĘCZEK

16:00 – 16:45 Companies presentation

16:00 – 18:00 Tour of Stary Sącz / Free time

19:30 Party with folklore elements

SEPTEMBER 9, 2022 (FRIDAY)

7:30 – 10:00 Breakfast

10:00 Official end of the conference

*POSTER SESSION

1. **MATRIX REPLICA-BASED ASSESSMENT OF THE REPRODUCED 13HMF STEEL MICROSTRUCTURE AFTER LONG-TERM SERVICE LIFE**
JUSTYNA KASIŃSKA, PIOTR MATUSIEWICZ, LEOPOLD BARWICKI
2. **ENERGY CHARACTERISTICS OF A SELECTED 6-AXIS INDUSTRIAL ROBOT**
EUGENIUSZ ZIÓŁKOWSKI, MATEUSZ SKRZYŃSKI
3. **IMPLEMENTATION OF AN EXPERT SYSTEM FOR TECHNOLOGY MACHINING OF AVIATION DETAILS**
MARCIN MAŁEK
4. **CRYSTALLIZATION KINETICS ANALYSIS OF THE BINARY AMORPHOUS Mg₇₂Zn₂₈ ALLOY AT THE ISOTHERMAL ANNEALING TEMPERATURES OF 352 AND 355 K**
BARTOSZ OPITEK, BEATA GRACZ, JANUSZ LELITO, TOMASZ KOZIEŁ, ŁUKASZ GONDEK, MICHAŁ SZUCKI, MARIUSZ ŁUCARZ, A. LINDSAY GREER, WITOLD K. KRAJEWSKI, PIOTR BAŁA
5. **INFLUENCE OF PLASTIC TECHNOLOGY ON THE MICROSTRUCTURE AND MECHANICAL PROPERTIES OF MAGNESIUM**
PIOTR THOMAS, JOANNA BOROWIECKA-JAMROZEK
6. **MODELLING OF THE ABRASIVE BLASTING PROCESS USING PETRI NETS**
PIOTR ZYZAK, ANDRZEJ MIKOŁAJKO
7. **ALPHINIZING OF PISTON RING INSERTS - PROBLEMS AND CHALLENGES**
JAROSŁAW PIĄTKOWSKI, MICHAŁ SZUCKI, MATEUSZ CZEREPAK
8. **ANALYSIS OF THE VARIABILITY NOISE LEVEL OF A SELECTED PASSENGER CAR BRAND**
GRZEGORZ PRZYDATEK, ANDRZEJ RYNIWICZ, MARCIN BODZIONY
9. **APPLICATION OF VACUUM IN THE HIGH-PRESSURE DIE CASTING OF ALUMINIUM ALLOYS**
MARCIN BRZEZIŃSKI, KAMIL KRÓL
10. **ANALYSIS AND EVALUATION OF QUALITY OF REFRACTORIES FORMED UNDER REDUCED PRESSURE**
MARCIN BRZEZIŃSKI, ALICJA TRELA, ALENA PRIBULOVA, PETER FUTAS
11. **EFFECT OF SELECTED MATERIAL AND PROCESS FACTORS ON THE PROPERTIES OF THE CORES PRODUCED BY THE SHOOTING PROCESS**
ARTUR BOBROWSKI, DAWID KOMOSA, KAROLINA KACZMARSKA, BEATA GRABOWSKA, FAUSTYNA WOŹNIAK, MATEUSZ SKOWRON
12. **INFLUENCE OF THE HOMOGENEITY OF THE PERLITE ORE FRACTION ON THE IMPROVEMENT OF THE KNOCKOUT PROPERTIES OF MOLDING SANDS WITH AN INORGANIC BINDER**
ARTUR BOBROWSKI, DARIUSZ DROŻYŃSKI, BEATA GRABOWSKA, KAROLINA KACZMARSKA, FAUSTYNA WOŹNIAK, MATEUSZ SKOWRON
13. **TREATMENT OF ZINC-BEARING WASTE IN THE ASPECT OF THE CIRCULATION ECONOMY - TECHNICAL AND ECONOMIC STUDY**
ARTUR BOBROWSKI, ALEKSANDER NEJRANOWSKI, BEATA GRABOWSKA, KAROLINA KACZMARSKA, FAUSTYNA WOŹNIAK, MATEUSZ SKOWRON
14. **THE ANALYSIS OF THE USE OF MECHATRONIC DEVICES SUPPORTING THE ORGANIST'S WORK**
TOMASZ KĄDZIOŁKA, SŁAWOMIR KOWALSKI, WOJCIECH WITOWSKI
15. **THE USE OF NUMERICAL SIMULATION FOR DEVELOPING A MAG WELDING TECHNOLOGY THAT MINIMISES DEFORMATION OF THE WELDED STRUCTURE**
MAREK MRÓZ, BOGDAN KUPIEC, ROBERT CZECH, ANDRZEJ DEC, PATRYK RAŚ, MARCIN SPÓLNIK

- 16. APPLICATION OF FURNACE COVERS FOR THE ALPHINIZING OF PISTON RING INSERTS**
MATEUSZ CZEREPAK, JAROSŁAW PIĄTKOWSKI
- 17. COMPARISON OF FURAN AND ALKALI-PHENOLIC BINDER PROPERTIES IN TERMS OF TECHNOLOGICAL PARAMETERS OF MOLDING SAND**
MARIUSZ ŁUCARZ, ADAM PIETRZAK
- 18. THE INFLUENCE OF WEATHER CONDITIONS AND MECHANICAL RECLAMATION ON THE MOLDING SAND WITH ALKALI-PHENOLIC BINDER FOR MANGANESE CAST STEEL**
MARIUSZ ŁUCARZ, DARIUSZ DROŻYŃSKI, ALDONA GARBACZ-KLEMPKA, JAN JEZERSKI, DARIUSZ BARTOCHA, TOMASZ WRÓBEL, KRZYSZTOF KOSTRZEWA, EDWARD FELIKS
- 19. THE INFLUENCE OF MECHANICAL RECLAMATION OF SPENT MOLDING SAND ON CHROMITE SAND MATRIX WITH ALKALI-PHENOLIC BINDER ON THE QUALITY OF THE OBTAINED RECLAIMED SAND**
MARIUSZ ŁUCARZ, ALDONA GARBACZ-KLEMPKA, DARIUSZ DROŻYŃSKI, MATEUSZ SKRZYŃSKI, JAN JEZERSKI, KRZYSZTOF KOSTRZEWA
- 20. THE MODEL STUDY OF SOLIDIFICATION OF ALUMINIUM BASED ALLOY OF THE SPECIFIED COMPOSITION WITH THE USE OF COMPUTER SIMULATION**
PAWEŁ L. ŻAK, RAFAŁ DAŃKO, KATARZYNA ŻAK
- 21. CHARACTERISATION OF POLYACRYLATE-POLYSACCHARIDE HYDROGEL FOR 3D PRINTING - FTIR, ATR INVESTIGATIONS**
KAROLINA KACZMARSKA, MATEUSZ ŚMIETANA, DARIUSZ DROŻYŃSKI, BEATA GRABOWSKA, ARTUR BOBROWSKI, FAUSTYNA WOŹNIAK, MATEUSZ SKOWRON, SYLWIA ŻYMANKOWSKA- KUMON
- 22. POLYLACTIDE USED AS FILAMENT IN 3D PRINTING - TG-DTG, DSC AND DRIFT INVESTIGATIONS**
BEATA GRABOWSKA, MATEUSZ SKOWRON, KAROLINA KACZMARSKA, ARTUR BOBROWSKI, FAUSTYNA WOŹNIAK
- 23. ANALYSIS OF DAMAGE TO SELECTED ELEMENTS OF THE AUTOMOTIVE VEHICLE SUSPENSION SYSTEM**
SŁAWOMIR KOWALSKI, KAZIMIERZ OPOKA