

INTERNATIONAL STUDENTS SCIENTIFIC CONFERENCE

PROGRAM OF THE INTERNATIONAL STUDENTS SCIENTIFIC CONFERENCE

TalentDetector2025_Summer

MONDAY 23th JUNE 2025 Aula A, Hotel Kotarz Spa&Wellness***, Brenna, Poland
09:00 – 10:00 Registration of participants
10:00 – 10:15 Opening Ceremony of TalentDetector2025_Summer Chairman: Prof. Mirosław Bonek
Opening lectures Chairmans: Prof. Marcin Adamiak, Prof. Tomasz Tański
10:15 – 10:30 Influence of tin and niobium on the morphology of calcium phosphate nanowires Yao M. Tsekpo, E. Atioyire, Weronka Smok, Paweł Jarka, Tomasz Tański Silesian University of Technology, Poland
10:30 – 10:45 Susceptibility of TIG welded joints of S960MC steel to hydrogen embrittlement Šikyňa Lukáš University of Žilina, Slovakia
10:45 – 11:00 Comparison of Au Deposition Methods on Ti: Effect of Surface Preparation on the Quality of Ti–Au Layers Okrawian Białas Silesian University of Technology, Poland
11:00 – 11:30 Coffee break - opening ceremony of the poster session Poster Room, Hotel Kotarz Spa&Wellness***, Brenna, Poland
11:30 – 13:00 Scientific session I TalentDetector2025_Summer (presentation time 10 min) Chairmans: Dr. Magdalena Szindler, Dr. Marek Szindler Aula A, Hotel Kotarz Spa&Wellness***, Brenna, Poland
Analysis of the Influence of Mold Temperature on the Physical Properties of Low-Density Polyethylene Mateusz Lis, Katarzyna Młynarek-Żak Design and Development of Prototype Mobile Platforms Franciszek Borgosz, Michał Płok, Michał Łubko Investigation of nozzle temperature impact on surface roughness and mechanical properties of FDM-printed CF-PEEK components Getu Koro Megersa, Wojciech Sitek, Agnieszka J. Nowak The effect of nickel on the austenite formation in LPBF Duplex stainless steel Beatrice Naa Ayeley Ardayfio, Zbigniew Brytan Design and Development of a Solar Sintering System for Powder Metallurgy Maciej Gajdemski, Marcin Kowalik, Błażej Tomiczek Design and Field Testing of a Synchronized Camera–LiDAR–IMU System for Real-World Dataset Collection Tomasz Kukuczka, Michał Polończyk AGV localisation in the process of mapping the room floors Jakub Mlaskawa, Krzysztof Paszek Standardized Experimental Method for Evaluating Aircraft Checklist Interfaces in IFR Simulation Dariusz Myszor, Magda Mrozik, Mateusz Pietraszko, Michał Sujkowski, Aleksandra Gruszka, Piotr Pulit

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13:00 – 14:00

Lunch break, Restaurant

14:00 – 15:30

Scientific session II TalentDetector2025_Summer

(presentation time 10 min)

**Chairmans: Dr Magdalena Szindler, Dr Marek Szindler
Aula A, Hotel Kotarz Spa&Wellness***, Brenna, Poland**

Laser Technology in Microfabrication and Optics

Katarzyna Ptasznik, Wiktoria Gamla, Mirosław Bonek

Comparative Analysis of Paper vs. Avionics-Integrated Checklists Based on Pilot Feedback

Dariusz Myszor, Magda Mrozik, **Mateusz Pietraszko**, **Michał Sujkowski**, **Aleksandra Gruszka**, **Piotr Pulit**

Near-Infrared Vein Visualization System with Integrated DLP Projection and Adaptive Image Enhancement Algorithms

Marcin Paszkuta, Agnieszka Szczęśna, Wirginia Likus, **Jakub Antonowicz**, Kamil Ceglarski, Artur Szaboń, Mateusz Róg, Aleksandra Wąsek, Sebastian Tkacz

Optimization of numeric keyboard interfaces based on signals from eye tracking components build in virtual reality goggles

Maja Rudnicka, Michał Lasak, Szymon Sadza

Modernization and development of transport applications of an autonomous airship

Maja Rudnicka, Michał Lasak, **Franciszek Borgosz**

AGV auto levelling system for autonomous floor mapping

Krzysztof Witek, Krzysztof Paszek, Ernest Antolak, Justyna Paszek

11:30 – 13:00

Poster Session I

Chairmans: Dr. Aleksandra Drygała, Dr. Sabina Lesz

Poster Room, Hotel Kotarz Spa&Wellness*, Brenna, Poland**

Finite Element Analysis of Single-Cell Ti6Al4V and TiZrNb Structures: Investigating Thickness and Porosity Effects for Scaffold Design Applications

Sichale Worku Fita, Mirosław Bonek, Sebastian Sławski, Anna Woźniak

Effects of Atomic Layer Deposition Temperature on the Formation of ZnO Nanolayers for Improved Solar Cell Efficiency

Elizabeth Addae, Wojciech Sitek, Marek Szindler

The Effect of Current-Assisted Lacquer Coating on The Corrosion Resistance of Electrolytically Nickel-Plated Surfaces

Yasin Akgun, Koray Guler, Yener Kilic, Cemal Meran

Design and production of a multi-layer composite material dedicated to insoles for professional running shoes

Krystian Albrecht, Agnieszka J. Nowak

Investigating the Response of PBF-LB/M AlSi10Mg and AlSi12Mg to Direct Aging: A Microstructural and Microhardness Study

Augustine Nana Sekyi Appiah, Przemysław Snopiński, Evans Atioyire, Marcin Adamiak

Wytwarzanie kompozytów ceramika-metal opartych na materiałach odpadowych infiltrowanych stopami metali lekkich

Jennifer Badora, Michał Głogowski, Julia Muszyńska, Julia Pindur, Karolina Romberg, Martin Mikolajčík, Zuzana Šurdová, Lenka Kuchariková, Mateusz Lis, Klaudiusz Gołombek

The methodology for calculating order value and pricing printed products in the "Print-Expert" automated management system

Tea Baramashvili, Nini Baidoshvili

Structure and corrosion resistance of CoCrFeNiNb_xMo_y near-eutectic high entropy alloys

Jakub Bicz, Krzysztof Matus, Rafał Babilas

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Kompozyty hydrożelowe na osnowie polietylenu

Marcin Bilewicz, Michał Rak, Igor Zdebel, Weronika Gębska, Michał Gwóźdź, Katarzyna Mazik

Analysis of the properties of composite materials made from components derived from renewable resources

Katarzyna Borowiecka, Agnieszka J. Nowak

Optimization of semiconductor layer thickness in dye-sensitized solar cells

Jakub Budzynowski, Oskar Górka, Judyta Drygała, Aleksandra Drygała

The Effect Of Magnetic Field On Welding Arc Field During Sheet Metal Welding

Berranur Ceker, Sezai Kunan, Murat Mat, Cemal Meran

Innovative laser surface treatment technology for engineering materials

Julia Chudy, Bartosz Filip, Szymon Szeja, Kacper Krysiak, Katarzyna Furman, Mirosław Bonek

Computationally Assisted Laser and Heat Treatment Processes for Surface Property Optimization

Julia Chudy, Bartosz Filip, Szymon Jędrzejewski, Matusz Paluch, Mirosław Bonek

Designing of universal testing machine simulator for remote education purposes

Xiyue Cui, Rafał Honysz

A Visual Platform for PC Hardware Configuration

Shiyang Dai, Linkun Xiao, Yifan Wu

Research on the loss of efficiency of an internal combustion engine

Olha Drobot, Oleg Polishchuk, Oleg Babak, Mirosław Bonek

Influence of print parameters on mechanical properties. Modifications of components made using 3D printing technology

Bartosz Filip, Mirosław Bonek

Materials used for recording of music played on a gramophone

Paweł Foltyn, Hanna Krymiec, Magdalena Maślanka, Wiktor Liszka, Bogusław Ziębowicz, Anna Ziębowicz

The Relationship Between Laser Technology and Eco-Friendly Cutting with PDM/PLM Systems and the Lean Six Sigma Approach in Production Engineering

Katarzyna Furman, Dominik Towarnicki, Mirosław Bonek

Structure and wear resistance of PVD TiN/TiAlN coating applied on a cemented carbide substrate

Rafał Gabryś, Magdalena Polok-Rubiniec, Anna Włodarczyk-Fligier, Aneta Kania

Porovnanie vlastností polotovarov z polymérneho kompozitu používaného pri termoformovaní

Rastislav Hanulík, Lenka Markovičová, Mirosław Bonek

Cutting of Future - Lasers in Modern Manufacturing

Magdalena Hulbój, Emilia Put, Mirosław Bonek

Functional properties of CrN coating obtained by PVD on aluminum alloy surface AlSi9Cu3

Justyna Janoszka, Natalia Puchała, Petr Jánský, Anna Smetanova, Michal Lattner, Antonín Kříž, Marcin Staszuk, Daniel Pakuła

Practical Applications of Laser Marking in Manufacturing Industry

Dawid Jarysz, Jan Wypiór, Mirosław Bonek

Pro-ecological Laser Cutting Technology

Szymon Jędrzejewski, Bartosz Nikiel, Kamil Oleksy, Matusz Paluch, Dominik Towarnicki, Mirosław Bonek

Evaluation of selected mechanical properties of Astaloy CrS material produced by sinterhardening process

Dmitriy Koblik, Miroslava Ľavodová, Monika Vargová

The use of laser technology in the processing of modern steels in the automotive industry

Tomasz Kołodziej, Wiktor Rudek, Mirosław Bonek

Secondary use of powder materials in additive manufacturing technologies

Dominik Krisak, Lenka Zavodna, Jiří Hajnýs, Martyna Urbańska, Kinga Stępska, Jan Wypiór, Olaf Pradelok, Krzysztof Olszak, Vojtěch Macejko, Eliška Posmyková, Mariusz Król, Agnieszka J. Nowak

Investigation of the Effect of Busbar Number on Solar Cell Characteristics

Alicja Król, Wiktoria Wilczak, Jakub Jabłoński, Cyprian Chowaniec, Kadir Ozdemir, Onur Dodak, Emir Kaan Ozbay, Wojciech Filipowski, Cemal Meran, Małgorzata Musztyfaga-Staszuk

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Design and production of gradient materials using additive technology – 3D printing

Patryk Krzempek, Mateusz Miarecki, Radosław Kos, Emilia Krzystanek, Krzysztof Goczoł, Marek Gazda, Dominik Krišák, Agnieszka J. Nowak, Mariusz Król

Farebné leptanie grafitických liatin

Denis Kulas, Alan Vaško, Mirosław Bonek

Automatic Granule Feeding Line For Cable Manufacturing: Design And Implementation

Batuhan Kurt, Cem Samet Kartal, Cemal Meran, Koksall Ilhan, Fatih Oztekin

Wpływ rodzaju anody lampy RTG podczas badań dyfrakcyjnych warstw napawanych laserowo na dokładność pomiarów

Waldemar Kwaśny, Wojciech Kała, Bartłomiej Kazek, Damian Janicki, Aleksander Lisieck

14:00 – 15:30

Poster Session II

Chairmans: Dr. Aneta Kania, Dr. Monika Kciuk

Poster Room, Hotel Kotarz Spa&Wellness***, Brenna, Poland

Optimization of engineering material selection using expert system

Ruojia Li, Rafał Honysz

Microstructural and chemical characterisation of norfloxacin

Paulina Lukaszewicz, Tiara Ogórek, Ewa Adamek, Wojciech Baran, Magdalena Szindler, Klaudiusz Gołombek

Organization of the CNC machine operator's position

Marcin Majnusz, Martyna Gawlas, Aneta Kania, Magdalena Polok-Rubiniec, Anna Włodarczyk-Fligier

Studies on performance properties of CrN coating obtained by PVD on austenitic steel surface X2CrNiMo17-12-2

Tobiasz Markowicz, Jakub Pluskota, Beniamin Sobczak, Petr Jánský, Anna Smetanova, Michal Lattner, Antonin Kříž, Daniel Pakula, Marcin Staszuk

Korózná odolnosť nehrdzavejúcej ocele AISI 316L po plazmovej nitridácii

Erik Meliš, Viera Zatkaliková

Shaping the microstructure and properties of duplex stainless steels manufactured via LPBF additive technology

Antonina Olszewska, Wiktoria Wanczura, Kamil Czajkowski, Bartosz Jagla, Kacper Toman, Oleksander Knysh, Aleksander Kolšovský, Mengistu Jemberu Dagnaw, Zbigniew Brytan, Jana Bidulská

Poruchy valivých ložísk

Mária Pilarčíková, Eva Tillová, Mirosław Bonek

Computer simulation of the mechanical properties of a wood chipping knife during the production of wood chips

Jakub Polis, Jakub Bicz, Radosław Trojnar, Daniel Pella, Filip Bejm, Amadeusz Dziwis, Agata Śliwa, Marek Sroka, Jan Komendák, Samuel Zachar, Mirosława Tavodova

Creating an effective cooling system for the loading zone of a 3D printer screw extruder when printing with composite mixtures

Andrii Polishchuk, Mirosław Bonek, Oleh Polishchuk, Serhii Matiukh, Svitlana Lisevich, Artem Tostiuk

Structure and phase transformations of Mg-Zn-Ca alloys containing Ag and Au obtained by mechanical alloying

Julia Popis, Oktawian Bialas, Oliwia Starczewska, Małgorzata Karolus, Sabina Lesz

Numerical analysis of the load on the surface of a wood chipping tool

Zuzanna Zielińska, Łukasz Lomania, Katarzyna Ptasznik, Kajetan Kojm, Wiktoria Borowiec, Wojciech Mikołajko, Agata Śliwa, Marek Sroka, David Varholík, Peter Očovský, Mirosława Tavodova

Wytrzymałościowa analiza numeryczna łomu wykonanego z różnych materiałów inżynierskich oraz jego wizualizacja

Adam Schwarz, Łukasz Buszka, Łukasz Mann, Amadeusz Dziwis, Wojciech Mikołajko, Agata Śliwa

Ergonomic assessment of the carpenter's workplace using the NIOSH method and the concept of robotics application

Marcin Sitko, Monika Spilka

Research on stone material from mining waste dumps for use in construction materials

Barbara Słomka-Słupik, Jakub Piasecki

Thermal analysis of aircraft double-pane windows

Haoliang Song, Ruyu Shi, Xiyue Cui

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Analysis of reactive power compensation in a 100/15kV station and the suitability of using capacitor banks in the network
Szymon Szeja

Analiza numeryczna własności mechanicznych wspornika schodowego
Mateusz Szojda, Bianka Wyrobek, Agata Śliwa, Marek Sroka

Energy saving technologies for obtaining high purity neon and helium
Irine Ugrehelidze, Tamaz Isakadze

Laser tattoo removal by Q-switch lasers
Martyna Urbańska, Kinga Stępska, Mirosław Bonek

Study of strength properties of components made of recycle doped filaments
Martyna Urbańska, Kinga Stępska, Jan Wypiór, Olaf Pradelok, Krzysztof Olszak, Vojtěch Macejko, Eliška Posmyková, Mariusz Król, Jiří Hajnýs

Microstructure and Hardness Evaluation of Additive Materials Applied by Hardfacing by Welding Technology
Monika Vargová, Miroslava Ťavodová

Vplyv veľkosti plastickej deformácie a teploty rekryštalizačného žihania na tvrdosť a štruktúru vybraných konštrukčných materiálov
Jozef Vicena, Milan Uhrčík, Mirosław Bonek

Určenie príčiny a následný návrh náhrady poistnej skrutky v kolennej endoprotéze
Richard Vidrich, Ronald Bašťovanský, Peter Palček, Mirosław Bonek

Six-degree-of-freedom robotic arm design
Qilin Wang, Fan Yang, Yining Huang, Wenhao Zhu, Chaoyue Yang

Passivation of steel: protection mechanism and comparison of chemical methods
Łucja Wantuch, Monika Kciuk

The influence of sea water on the properties of ship steel covered with a protective coating
Anna Włodarczyk-Fligier, Magdalena Polok-Rubinić, Aneta Kania

Analysis of the properties of multilayer composite materials dedicated for yacht hulls
Zuzanna Żaczek, Agnieszka J. Nowak

Characterisation of materials used in construction for damp-proofing and waterproofing
Ewelina Kaputa-Kuc, Ewa Jonda, Marek Sroka

Development of biodegradable composite based on PLA matrix with the addition of material acquired from Symbiotic Cultures of Bacteria and Yeast (SCOBY)
Adrianna Hadyk, Wojciech Smółka, Jakub Osiewała, Olivia Mikolajec, Julia Kuliś

15:30 – 15:40

Closing ceremony of TalentDetector2025_Summer
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