

II International Scientific and Practical Conference

**«Development and design of modern
materials and products»**



PROGRAM
Dnipro, Ukraine
November 9th-10th, 2023

Dear colleagues!

Scientific society: employees of higher educational institutions and research institutes, including graduate students and students, as well as representatives of organizations and firms engaged in the field of knowledge-intensive business, welcome you to **the 2nd International Scientific and Practical Conference "Development and Design of Modern Materials and Products"**, organized based on the Engineering and Generative Design Department Dnipro University of Technology.

We are organizing a conference in the context of the Russian-Ukrainian war, which changed everything not only in Ukraine, in Europe, but also in the whole world.

We hope that such a conference is another opportunity to gather scientists from different directions and countries of the world, with the aim of preserving global scientific unity in such difficult conditions.

We are sure that the results of our joint work will be interesting and useful for all participants of the conference and will serve to solve modern problems of the world scientific community.

CONFERENCE ORGANIZERS

- Dnipro University of Technology (Dnipro, Ukraine),
- Institute of Electric Welding named after E.O. Paton National Academy of Sciences of Ukraine (Kyiv, Ukraine),
- Institute of Ferrous Metallurgy. Z.I. Nekrasov National Academy of Sciences of Ukraine (Dnipro, Ukraine)
- Lutsk National Technical University

PARTNERS

- National Technical University of Ukraine "Ihor Sikorsky Kyiv Polytechnic Institute"
- Lviv Polytechnic National University
- KTH Royal Institute of Technology (Stockholm, Sweden)
- Universitat Politècnica de València (Spanish)

PROGRAMM

NOVEMBER 9 9:15 AM – 5:00 PM – PLENARY MEETING

09:00– 09:15– Registration of conference participants on the Microsoft Teams platform.

Speaker of the meeting

professor **Dmytro LAUKHIN**

Moderators

associate professor **Nataliia ROTT**
Ilya VERNER

Microsoft Teams event
link

https://teams.microsoft.com/l/meetup-join/19%3ameeting_NmYwOTVIZmYtZmMzMC00MzU2LWFjZGI0NDc4OTEzOTdiZTM4%40thread.v2/0?context=%7b%22Tid%22%3a%226cbb82a7-8f8b-4e21-8922-e8dd1f03e636%22%2c%22Oid%22%3a%224e0bea08-eebf-4522-a851-091737420f1a%22%7d

09:15– 9:20 – Ceremonial opening of the international conference "Development and design of modern materials and products"

9:20 – 09:25– welcome speech of the rector of Dnipro University of Technology, professor **Oleksandr AZIUKOVSKIY**

09:25- 09:30 - welcome speech of the head of the Engineering and Generative Design Department **Serhii FEDORIACHENKO**

09:30 Act speech of conference participants

The schedule of the report is up to 20 minutes.

09:30 - 09:50 *«Effect of structures on the strength, fracture toughness, crack resistance of welded joints of high-strength steels and composite coatings»* **BERDNIKOVA Olena, KUSHNAROVA Olga, ALEKSEIENKO Tetyana, POLOVETSKYI Yevhen**, Paton Electric Welding Institute of the NAS of Ukraine

09:50 - 10:10 *«Challenges and opportunities in Education : Role of Digital Education & Scope of Online Learning»* **Dr. DAVINDER Singh Chhina**; Principal Education Department; Punjab

10:10 - 10:30 *«Prospective ways of obtaining high-strength sheet metal from economically alloyed steels»* **KIMSTACH Tetian, KONONENKO Hanna, SAFRONOVA Olena, PODOLSKY Rostisla**, Iron and Steel Institute named after Z. I. Nekrasov of the National Academy of Sciences of Ukraine

10:30 - 10:50 *«Study of structure formation of deformed magnesium alloy ma2-1m with different methods of welding»* **KOSTIN Valer, KHOKHLOVA Juli, KHOKHLOV Maksim**, Paton Electric Welding Institute NAS Ukraine

10:50 - 11:10 *«Properties of polypropylene composites filled with lignin»* **MELNYCHUK Mykola, POLIVODA Nina, SHEVCHUK Igor**, Lutsk national technical university

10:50 - 11:10 *«Development of optimal technological parameters of deposition of plasma coatings»* **HLUSHKOVA Diana**, Kharkiv National Automobile and Highway University

11:10 - 11:30 *«Special borders and multiple joints in hypoeutectoid ferrite»* **LAUKHIN Dmytro, BEKETOV Oleksand, DADIVERINA Liliia, KOZECHKO Valentyn**, Dnipro University of Technology

11:30 - 11:50 «*Influence of changes in mechanical properties of elastomeric shell material on a stress state of a composite tractive element with local structural changes*»

**KOLOSOV Dmytro, ONYSHCHENKO Serhii, DOLGOV Oleksandr.,
CHERNYSH Pavlo**, Dnipro University of Technology

11:50 - 12:10 «*An approximate model of the dynamics of an aircraft of time-varying mass in the presence of a moving damper and a combined external load*»

HRYSHCHAK Dmytro Dnipro University of Technolog

12:10 - 12:30 «*Force vibrations of nonlinear mechanical system, with parameters dependency upon time, at present of nonlinear damping and casual external loading*»

GRISTCHAK Viktor, RUDENKO Dariia, Dnipro University of Technology and National University "Zaporizhzhia Polytechnic"

12:30 - 12:50 «*Metallographic analysis of structural state of welded joint zones after electron-beam welding*» **SLUPSKA Yuliia, KOLOSOV Dmytro, ONYSHCHENKO Serhii**, Dnipro University of Technology

12:50 - 13:10 «*Features design of composite reinforcement in modern software*» **HOROKHOVA Alina, ROTT Nataliia**, Dnipro University of Technology

13:10- 13:30 «*Effect of the use of hard round polymer rods reinforced with fiberglass on the strength and durability of concrete structures*» **PILIUHIN Yevhenii, ROTT Nataliia, BODRIAHO Yelyzaveta**, Dnipro University of Technology

13:30- 13:50 «*Assessment of the possibility of reducing material costs in the manufacture of enclosed gear casings*», **MATSIUK Iryna, LAUKHIN Dmytro, TVERDOKHLIB Olexander**, Dnipro University of Technology

13:50- 14:10 «*The influence of the thermophysical properties of the material of the upper support shafts of the pellet flushing furnace on the performance characteristics of the bearing assembly*» **MYLA Maryna, ZIBOROV Kyrylo**, Dnipro University of Technology

14:10- 14:30 «*Industrial design: Engineering or art*» **PISMENKOVA Tetiana, MARTÍNEZ TORÁN Manuel**, Dnipro University of Technology and Universitat Politècnica de València

14:30- 14:50 «*Recycling of welding electrodes using vibration-impact loading*» **FEDOSKINA Olena, YERISOV Mikola, FEDOSKIN Valeriy**, Dnipro University of Technology

14:50- 15:10 «*About the influence of the mode parameters of the "wheel – rail" pair on the condition of the surface layer of the tire wheel*» **FRANCHUK Vsevolod, ZIBOROV Kyrylo, BODNIA Dmytro**, Dnipro University of Technology

15:10- 15:30 «*Adhesion of nomex coatings to metal substrates*» **KLYMENKO Anton SAZANISHVILI Zoia**, Dnipro University of Technology

15:30- 15:50 «*Analysis of the stressed-deformed state of a plametic body in interaction with a solid object*» **HARKAVENKO Dmytro, LAUKHIN Dmytro, FEDORIACHENKO Serhii** Dnipro University of Technology

15:50- 16:10 «*Design of the composite material of the false roof of skoda wagons*» **VYSHNIVETSKYI Vladyslav, FEDORYACHENKO Serhii**, Dnipro University of Technology

16:10- 16:30 *"Prospects for the application of additive 3D printing technologies in construction"* **SKOBENKO Oleksandr, HAPIEIEV Serhii, DADIVERINA Liliia**
Dnipro University of Technology

16:30- 16:50 *"To the strength problem of a pipeline's functional gradient materials with a variable modulus of elasticity"* **NAUMENKO Olena**, Dnipro University of Technology

NOVEMBER 10 2:00 PM – 4:00 PM – MASTER CLASS

WELDING ALUMINUM
AND MAGNESIUM
ALLOYS

KOSTIN Valery

https://teams.microsoft.com/l/meetup-join/19%3ameeting_NzRmZTQ1OTctMTE3OS00Yzk2LTk0MGUtZDJkMjEwNTNmYWl3%40thread.v2/0?context=%7b%22Tid%22%3a%226cbb82a7-8f8b-4e21-8922-e8dd1f03e636%22%2c%22Oid%22%3a%224e0bea08-eebf-4522-a851-091737420f1a%22%7d

Dear participants and guests of the 2nd International Scientific and Practical Conference "Development and Design of Modern Materials and Products"

We wish you fruitful work, pleasant online meetings and a successful conference!

*Sincerely, the Conference
Organizing Committee*