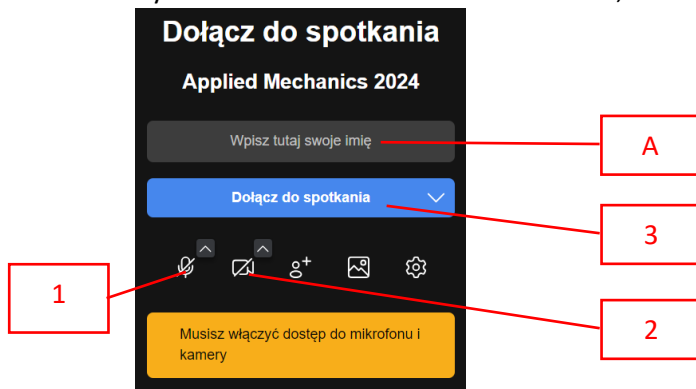




12TH INTERNATIONAL SCIENTIFIC SESSION APPLIED MECHANICS NOVEMBER 15, 2024, VIRTUAL-ONLINE, BYDGOSZCZ

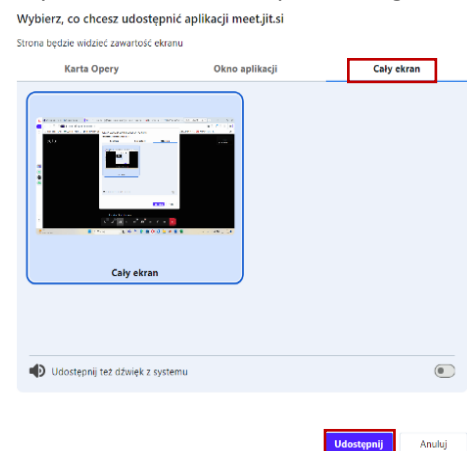
Important remarks

- The conference will be held remotely at the link: <https://meet.jit.si/AppliedMechanics2024>. Below you will find short instructions how to log in.
 - After clicking the link, you will see the login page.
 - Enter your first and last name in the "A" field, to enable your identification at the conference.

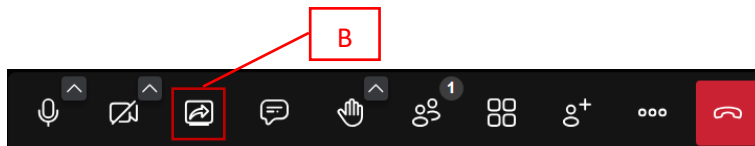


- The microphone icon indicates that the microphone is turned off/on.
- The camera icon with a crossed out means that the camera is turned off.
- Entering to the meeting.

PLEASE TURN YOUR MICROPHONE OFF to reduce interference if you do not wish to speak at a given time.



- In order to make the presentation screen available, click the "B" icon and choose the full window "Cały ekran", then click "Udostępnij". After the presentation is finished, click the "B" icon again to disable screen sharing.



- Due to the participants from Ukraine, it should be noted that **in Poland it is 9:00 AM, and in Ukraine - 10:00 AM. The hours in the schedule below refer to the time in Poland.**
- The hours of presentations in the schedule below may change (shortening of the session) due to the war in Ukraine and possible difficulties with access to the Internet.
- Each presentation should last up to **15 minutes**.
- Sessions 3, 4 and 5 will be held in parallel in two "rooms". The organizers will move the authors (just before their presentation) to the appropriate rooms according to the schedule below. The authors can also move (switch) between rooms on your own.

Session schedule

Session opening (8:50-9:00)

Chairman of the Organizing Committee: **Przemysław Strzelecki**

Chairman of the Scientific Committee: **Tomasz Piątkowski**



Session 1 (9:00 – 10:15, session chair: **Justyna Sobczak-Piąstka**):

1. Jarosław Górski, Mateusz Sondej, Tomasz Mikulski, Rafał Gierasimczyk, Reliability of fuel pressure tanks in terms of standard criteria - an open dispute.
2. Justyna Sobczak-Piąstka, Krystian Rosiński, Mykhaylo Delyavskyy, Nina Zdolbitska, Modeling of thin isotropic polygonal plates using macroelement method.
3. Maciej Dutkiewicz, Marta Maksymovych, Oleksandr Lampitskyi, Study of bending of prismatic rods with cross sections of complex shapes based on conformal mapping.
4. Magdalena Sosnowska, Adam Grabowski, Magdalena Lachowicz, Adam Podhorecki, Examples of numerical modelling of coupled thermodiffusion problems.
5. Roman Kinasz, Wiesław Bereza, Mirosław Bielecki, Improper formation of buttons in historical structures – case analysis.

Discussion (10:15 – 10:25).

Session 2 (10:25 – 11:40, session chair: **Marta Kurek**):

1. Tomasz Piątkowski, Simscape environment in object motion modelling on oblique chute with guides.
2. Veronika Kharina, Andrzej Kurek, Evaluation of mechanical properties of CuZn40 and CuZn42 alloys for electrical contacts: Impact of material stiffness on performance and reliability.
3. Victor Artemenko, Khrystyna Demchyna, Pavlo Oprysk, Calculation of the building's stability against progressive destruction on the example of a real project.
4. Wojciech Batko, Andrzej Bąkowski, Leszek Radziszewski, Sensitivity modeling of selected road transport noise parameters.
5. Yurii Bodnar, Mykola Syniekop, Solving Problems of extended thermo-elasticity by means of R-functions.

Discussion (11:40 – 11:50).

Session 3a

(11:50 – 13:05, session chair: **Adam Podhorecki**):

1. Bohdan Karavan, Victor Karavan, Sergii Filipchuk, Yuriy Famulyak, Study of crack formation processes in reinforced concrete arches made of high-strength rapidly hardening concrete under the action of static low-cycle repeated loads.
2. Oleksandr Zhuravskyy, Leonid Skoruk, Justification of the protective properties of dual purpose civil defense structures.
3. Olena Mikulich, Justyna Sobczak-Piąstka, Tetiana Kradinova, Natalia Komenda, Oksana Guda, Investigation of plastic deformation multi-cycle loading in polyurethane foam.
4. Taras Osadchuk, Andriy Mazurak, Yuriy Famulyak, Bohdan Demchyna, Leonid Vozniuk, Finite element analysis of stress-strain state of laminated glass plate.
5. Taras Osadchuk, Yuriy Famulyak, Bohdan Demchyna, Leonid Vozniuk, Karol Pietrzak, Post-failure behavior of structural multi-layered glass.

Discussion (13:05 – 13:15).

Session 3b

(11:50 – 13:05, session chair: **Przemysław Strzelecki**):

1. Andrzej Światała, Adam Lipski, Molding wing with variable camber near trailing edge.
2. Andrzej Światała, Piotr Swacha, Adam Lipski, Tensile tests of unidirectional glass fibre composite with elastic matrix.
3. Lev Velychko, Nadiia Huzyk, Oksana Bilash, Oksana Petruchenko, Dynamics of a projectile fired from the Krab howitzer.
4. Michał Kekez, Leszek Radziszewski, Andrzej Bąkowski, Modeling of the coefficient of exceedance of the recommended noise levels at thoroughfare using computational intelligence.
5. Mihiretu Gezahagn Ganta, Marta Kurek, Influence of corrosive environment on fatigue life of additively produced 18Ni300 steel under cyclic loading conditions.


Session 4a

(13:15 – 14:30, session chair: **Yuriy Famulyak**):

1. Andrii Kramarchuk, Borys Ilnytskyi, Svitlana Vikhot, Removal of a monolithic reinforced concrete floor slab damaged by through cracks from an emergency state.
2. Leonid Serilko, Oleg Lyashuk, Dmytro Serilko, Oleksandr Stadnyk, Dmytro Chasov, Sviatoslav Homon, Andrii Subota, Nadiia Kis, Vibrational movement of material in a chute with combined friction.
3. Oleh Vereshko, Sviatoslav Homon, Yuliia Melnyk, Svyatoslav Gomon, Inna Boyarska, Petro Gomon, Oleksandr Chapiuk, Andrii Pavluk, Influence of acidic environments on wood density.
4. Petro Gomon, Svyatoslav Gomon, Sviatoslav Homon, Bogdan Karavan, Serhii Drobyshynets, Pavlo Sunak, Oleksandr Chapiuk, Natalia Chornomaz, Determining the deflection due to shear stresses taking into account the nonlinearity of the materials of reinforced wooden beams.
5. Sofiya Burchenya, Svitlana Vikhot Oleksiy Gayda, Experimental and theoretical research of crack resistance in beam structures reinforced with mixed reinforcement.

Discussion (14:30 – 14:40).

Session 5a

(14:40 – 15:55, session chair: **Bohdan Demchyna**):

1. Bohdan Demchyna, Leonid Vozniuk, Mykhailo Surmai, Dmytro Burak, Yuriy Famulyak, Load-bearing capacity of beams manufactured using 3D printing and reinforced with welded frames.
2. Bohdan Demchyna, Leonid Vozniuk, Serhii Shcherbakov, Dmytro Burak, Viktor Artemenko, Ihor Hnes, 3D printing of a semi-circular unreinforced arch using a building printer.
3. Serhii Filipchuk, Victor Karavan, Bohdan Karavan, Yuriy Famulyak, Adam Bujarkiewicz, Methodological bases of structural calculation of fortification protective structures.
4. Svyatoslav Gomon, Sviatoslav Homon, Petro Gomon, Viktor Karavan, Andrii Pavluk, Bogdan Karavan, Yuri Puhach, Oleksiy Petrenko, Analysis of the existing method of calculating bending wooden elements according to current design standards.

Discussion (15:55 – 16:05).

Session closing (16:05-16:15)

Chairman of the Organizing Committee: **Przemysław Strzelecki**

Session 4b

(13:15 – 14:30, session chair: **Tomasz Piątkowski**):

1. Alla Bosak, Leonid Kulakovskiy, Sviatoslav Homon, Zoia Sasiuk, Serhii Drobyshynets, Pavlo Sunak, Oksana Dziubynska, Mariia Smal, Optimizing heat energy consumption of the peat drying process in steam tube dryer.
2. Eugene Pugachova, Serhii Litnitskyia, Sviatoslav Homon, Taras Kundrata, Vasyl Zdanevycha, Orest Pakholiukb, Inna Parfentyevab, Svitlana Rotkob, Influence of the form and width of cross pass on the audience surface form of public buildings.
3. Ryszard Dindorf, Łukasz Chłopek, Impedance modeling of the pressure shock absorber in a hydraulic lifting system.
4. Stanisław Mroziński, Piotr Swacha, Andrzej Skibicki, Fatigue evaluation of the degradation of a cast steel structure due to fire.
5. Stanisław Mroziński, Robert Kalkszejn, Michał Piotrowski, The impact of variable loading on the strength of wood bonded joints.

Session 5b

(14:40 – 15:55, session chair: **Michał Stopel**):

1. Adam Rachwalski, Emil Smyk, Michał Stopel, Investigation of stream straighteners in a straight channel.
2. Dariusz Skibicki, Envelopes of shear and normal stresses for complex stress state.
3. Krzysztof Konopa, Artur Cichański, Topological optimisation and construction of the car rim.
4. Robert Kostek, Wojciech Łabędź, Experimental study on the mechanical properties of screws.
5. Tomasz Tomaszewski, Multifractal approach to analyse the size effect of selective laser melted AlSi10Mg alloy.