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**UNIVERSITY OF
FORESTRY**
Sofia, Bulgaria



BRANCH CHAMBER
OF WOODWORKING
AND FURNITURE INDUSTRY



UNIVERSITY
OF ARCHITECTURE
CIVIL ENGINEERING
AND GEODESY



MINISTRY OF EDUCATION AND SCIENCE

BULGARIAN
NATIONAL
SCIENCE
FUND

INNOVATIONS IN FOREST INDUSTRY AND ENGINEERING
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CONFERENCE PROGRAMME

Monday, October 3, 2022

9:00 Organized transport from the parking lot of the University of Forestry in Sofia to Rila Hotel in Borovets resort

10:30 Arrival at Rila Hotel in Borovets resort

10:30 – 11:00 REGISTRATION OF PARTICIPANTS

11:00 – 13:00 PRESENTATION OF COMPANIES FROM THE BRANCH OF WOODWORKING AND FURNITURE INDUSTRY

13:00 OPENING REMARKS, Rila 2 conference hall

Corresponding Member, Prof. DSc Ivan Iliev – Rector of the University of Forestry
Prof. PhD Zhivko Gochev – Dean of Faculty of Forest Industry

13:30 – 15:30 KEYNOTE PAPERS, Rila 2 conference hall
Chairman: Chief Assist. Prof. Dr. Mariya Kokorska
Technical Secretary: Chief Assist. Prof. Dr. Todor Petkov



BULGARIAN BRANCH CHAMBER
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Единадесетата международна научно-техническа конференция ИНОВАЦИИ В ГОРСКАТА ПРОМИШЛЕНОСТ И ИНЖЕНЕРНИЯ ДИЗАЙН се провежда с подкрепата на ФНИ, в рамките на Договор № КП-06-МНФ/10 от 20.07.2022 г. Фонд „Научни изследвания“ не носи отговорност за съдържанието на докладите, представени на научния форум, както и за съдържанието на рекламните и други материали за него.



MODELING OF METAMATERIALS FOR FURNITURE HONEYCOMB PANELS

Prof. Dr. Jerzy Smardzewski, Poznań University of Life Sciences,
Faculty of Forestry and Wood Technology, Department of Furniture Design,
Poznań, Poland



THE DEEP TECH: NEXT BIG THING IN INNOVATION ECOSYSTEM

Dr. Nadir Yildirim, Innovation Director Acting Executive Director for Strategic
Planning and Partnerships Hamad Bin Khalifa University (HBKU), Education City,
Doha, Qatar



CHALLENGES AND OPPORTUNITIES FOR THE FURNITURE INDUSTRY IN BULGARIA AFTER THE COVID CRISIS, WAR AND RAW MATERIAL SHORTAGES

Prof. Dr. Vassil Jivkov, University of Forestry Sofia, Faculty of Forest Industry,
Department of Interior and Furniture Design; Chairman of Branch Chamber of
Woodworking and Furniture Industry, Sofia, Bulgaria

15:30

GROUP PHOTO OF ALL CONFERENCE PARTICIPANTS

15:40 – 16:00

COFFEE BREAK

16:00 – 19:00

SESSION 1: RELATIONSHIP BETWEEN THE SCIENCE AND INDUSTRY,
Rila 2 conference hall

Chairman: Chief Assist. Prof. Dr. Mariya Kokorska

**THE BULGARIAN BRANCH CHAMBER OF WOODWORKING AND FURNITURE INDUSTRY
A BRIDGE BETWEEN BUSINESS AND EDUCATION** - Daniela Petrova, Bulgarian Branch
Chamber of Woodworking and Furniture Industry

KASTAMONU- Cagatay Piyadeci, Kastamonu Bulgaria

S/4HANA READY-TO-RUN - Elena Nikolova-Zhelyazkova, STEMO

**ONLINE SHOP FOR FURNITURE COMPONENTS – INSTRUMENTS FOR PLANNING AND
OPTIMIZATION OF DETAILS** – Dipl. Eng. Alexander Sevdin, JAF Bulgaria

FESTOOL – THE INNOVATIVE COMPANY – Petar Yankov, Festool Bulgaria

20:00

GALA DINNER, Restaurant Samokovi, Hotel Rila



ELEVENTH INTERNATIONAL SCIENTIFIC AND TECHNICAL CONFERENCE
INNOVATIONS IN FOREST INDUSTRY AND ENGINEERING DESIGN – INNO 2022

3 -5 October 2022, Hotel Rila, Borovets, Bulgaria

CONFERENCE PROGRAMME

Tuesday, October 4, 2022

8:30 – 10:45 **SESSION 2, Zahari Zograf conference hall**
Chairman: Prof. PhD Petar Antov

BUILDING AN INNOVATION ENGINE IN WOOD-BASED PANEL INDUSTRY – Dr. Huseyin Guler, Global Business Planning and Innovation Director, Kastamonu Integrated Wood Trade Inc.

INFLUENCE OF COMPONENTS (UV + VIS) OF SOLAR RADIATION ON THE COLOUR CHANGE OF UNSTEAMED AND STEAMED BEECH WOOD - Ladislav Dzurenda, Michal Dudiak, Adrián Banski

IDENTIFICATION OF THE COLOR FALSE HEARDWOOD OF FAGUS SYLVATICA L. IN THE COLOR SPACE CIE L*A*B* - Ladislav Dzurenda, Michal Dudiak

BEECH WOOD MODIFIED BY RADIO-FREQUENCY DISCHARGE PLASMA - Peter Jurkovič, Ján Sedliačik, Igor Novák, Ivan Chodák, Angela Kleinová, Ján Matyašovský

REDUCTION OF FORMALDEHYDE EMISSION FROM WOOD-BASED PANELS BY MODIFICATION OF UF ADHESIVES WITH NATURAL BIOPOLYMERS - Ján Matyašovský, Ján Sedliačik, Peter Jurkovič, Peter Duchovič, Igor Novák

MODIFICATION OF VARIOUS WOOD SPECIES BY BARRIER DISCHARGE PLASMA - Ján Sedliačik, Igor Novák, Ivan Chodák, Angela Kleinová, Ján Matyašovský, Peter Jurkovič

COMPARATIVE STUDY OF HEATING TECHNOLOGY AND INERT ATMOSPHERE AFFECTING LIGNOCELLULOSIC BIOMASS THERMOCHEMICAL MODIFICATION - Anelie Petrissans, Priscila Rios Teixeira, Rafael L. Quirino, Larissa Richa, George Durrell, Allen Hulette, Baptiste Colin, Mathieu Petrissans

EXPERIMENTAL STUDY AND MODELING OF THERMODEGRADATION DURING TORREFACTION OF ROW AND POTASSIUM IMPREGNATED BEECH WOOD - Tram Nguyen, Larissa Richa, Anelie Petrissans, Rafael L. Quirino, Daniela Florez, Romain Remond, Baptiste Colin, Vanessa Fierro, Alain Celzard, Mathieu Petrissans

10:45 – 11:00 **COFFEE BREAK**

11:00 – 12:30 **SESSION 3, Zahari Zograf conference hall**
Chairman: Assoc. Prof. Dr. Victor Savov

INFLUENCE OF HYDROTHERMAL TREATMENT OF BEECH WOOD ON THE PROPORTION OF DUST PARTICLES FROM THE MILLING PROCESS - Richard Kminiak, Martin Kučerka, Ľuboš Krišťák, Alena Očková

DEVELOPMENT OF COMPOSITE TIMBER GIRDERS - Meta Kržan, Tomaž Pazlar, Ivan



Grašič, Boštjan Ber

THE INFLUENCE OF WOOD PELLET EXPOSURE TO DIFFERENT MICROCLIMATIC CONDITIONS ON THEIR MECHANICAL AND DIMENSIONAL PROPERTIES - Marin Dujmović, Kristijan Radmanović, Matija Jug, Juraj Jovanović, Krešimir Balaško, Danijel Orlić, Branimir Šafran

IMPACT OF THE SAMPLE DIMENSIONS ON MEASURED WOOD COMPRESSIVE PROPERTIES ON THE LONGITUDINAL DIRECTION - Krešimir Balaško, Marin Dujmović, Franko Lončar, Juraj Jovanović, Matija Jug, Branimir Šafran, Kristijan Radmanović

MODERN ENGINEERING TECHNIQUES FOR THE PRODUCTION OF MODIFIED POLYSACCHARIDES WITH BIOLOGICAL ACTIVITY - Dragomir Vassilev, Nadezhda Petkova, Milka Atanasova, Panteley Denev

EFFECT OF THE HYDROLYSIS REGIME ON THE PROPERTIES OF RECYCLED FIBRES - Viktor Savov, Petar Antov, Christian Panchev, Muhammad Adly Rahandi Lubis

SUNFLOWER STALKS AND LIGNOSULFONATE - ALTERNATIVE RAW MATERIALS FOR THE PRODUCTION OF ECO-FRIENDLY MEDIUM DENSITY FIBREBOARDS - Julia Mihajlova, Viktor Savov

COMPUTING THE AVERAGE MOISTURE CONTENT OF WOOD MATERIALS SUBJECTED TO STEAMING IN AN AUTOCLAVE - Nencho Deliiski, Natalia Tumbarkova, Dimitar Angelski, Pavlin Vitchev

CHANGE IN THE DURATION OF AUTOCLAVE STEAMING REGIMES OF NON-FROZEN PRISMS AT DISPATCHING INTERVENTIONS IN THE PRODUCTION OF VENEER - Nencho Deliiski, Dimitar Angelski, Pavlin Vitchev, Natalia Tumbarkova

12:30 – 13:30

LUNCH

13:30 – 15:00

SESSION 4, Zahari Zograf conference hall
Chairman: Prof. DSc Ing. Nencho Deliiski

MECHANICAL RESPONSES OF THIN-WALLED HONEYCOMB PANELS WITH DISCREETLY PLACED REINFORCING ELEMENTS - Jerzy Smardzewski, Maciej Tokarczyk

COMPARATIVE ANALYSIS OF PHYSICAL AND MECHANICAL PROPERTIES OF SOME THIN AND ULTRA-THIN WOOD-BASED AND NON-WOOD-BASED FURNITURE PANELS - Vassil Jivkov, Boryana Petrova, Nikolay Yavorov

POSSIBILITIES OF DETERMINING THE CHARACTERISTICS OF WOODCHIPS USING IMAGE ANALYSIS IN THE MATLAB PROGRAM - Peter Koleda, Pavol Koleda

THE INFLUENCE OF THERMAL MODIFICATION OF OAK, SPRUCE AND MERANTI BLANKS ON SURFACE ROUGHNESS DURING SANDING - Martin Kučerka, Richard Kminiak, Lubos Kristak, Tomasz Rogozinski, Marta Pedzik

ADHESION OF LACQUER COATINGS TO HDF SUBSTRATE IN UV ANALOGUE PRINTING SYSTEMS - Tomasz Krystofiak, Maciej Tokarczyk, Barbara Lis

INVESTIGATIONS OF THE VISCOSITY OF LACQUER PRODUCTS FOR PRINTING UV



TECHNOLOGIES - Tomasz Krystofiak, Milena Henke, Barbara Lis

TECHNOLOGIES FOR UTILIZATION OF WASTE FROM CUTTING OF WOODEN MATERIALS
- Dimitar Angelski

SURFACE ROUGHNESS PARAMETERS FOR EVALUATION OF SANDING AND SANDPAPER GRIT SIZE IN PLYWOOD SURFACE PREPARATION FOR FILM FORMATION - Krasimira Atanasova

15:00 – 15:15

COFFEE BREAK

15:15 – 18:00

SESSION 5, Zahari Zograf conference hall
Chairman: Prof. Dr. Dimitar Angelski

METHODS FOR DIGITALISING MATERIAL SURFACES AND THEIR USAGE IN THE DIGITAL ENVIRONMENT - Atanas Hristozov

NATURAL WOOD STAIN IN THE DESIGN FOR CHILDREN - Ivanka Dobрева-Dragostinova

WOODEN TOYS IN A CHILD'S WORLD - Ivanka Dobрева-Dragostinova

CHANGES IN THE BANKING SPACES' FUNCTIONAL SCHEMES IN BULGARIA: 1990 – 2020 - Gergana Dikanska

THE TRIPOD: A RARELY MENTIONED FURNITURE TYPE - Regina Raycheva, Desislava Angelova

SMALL SPORT ZONES IN HOME AND IN OFFICE: INTERIOR AND DESIGN - Stela Tasheva, Desislava Angelova, Pavlina Vodenova

DIGITAL EDUCATION IN THE FACULTY OF „FOREST INDUSTRY” IN THE CONTEXT OF INDUSTRY 4.0 - Galin Milchev, Zhivko Gochev, Dimitar Angelski, Desislava Angelova, Nelly Staneva, Pavlin Vitchev

SUCCESSFUL COLLABORATION BETWEEN DISCIPLINES THROUGH THE APPLICATION OF DESIGN THINKING IN THE CONTEXT OF TEACHING IN A VIRTUAL ENVIRONMENT - Maya Ivanova, Samuil Botev, Desislava Angelova, Pavlina Vodenova

18:15 – 19:00

SESSION 6, Zahari Zograf conference hall
Chairman: Assoc. Prof. Dr. Galin Milchev

TECHNOLOGICAL RESEARCH OF PNEUMOSEPARATOR FOR FOREST SEED EXTRACTION
- Konstantin Marinov, Milen Ivanov, Dimitar Peev

EXPLOITATION RESEARCHES ON FORESTRY MILLING MACHINES FOR SOIL PREPARATION AT THE TERRITORY OF SHUMEN NORTH-EAST STATE FORESTRY - Konstantin Marinov, Konstantin Kostov

EXPLOITATION RESEARCH OF A CABLE SKIDDER TAF 690 PE FOR TIMBER SKIDDING IN THE WESTERN STARA PLANINA - Dimitar Peev, Dimitar Georgiev, Konstantin Marinov
SUITABLE OF LOCUST TREE WOOD FOR PRODUCE FURNITURE - Panayot Panayotov



Wednesday, October 5, 2022

8:30 – 10:30	SESSION 7, Zahari Zograf conference hall Poster session
	EDGE WITHDRAWAL RESISTANCE OF SCREWS AND CONFIRMAT INTO DIFFERENT WOOD-BASED PANELS - Vassil Jivkov; Borislav Kiuchukov; Ralitsa Simeonova; Assia Marinova
	AUTOMATED ELECTRO-PNEUMATIC MECHATRONIC COMPLEX FOR TREATMENT OF SMALL ROTARY DETAILS OF SOLID WOOD - Izabela Radkova, Reneta Dimitrova, Slav Dimitrov
	OPTIMIZATION OF WAREHOUSE AREAS FOR FINISHED PRODUCTS IN FURNITURE INDUSTRY ENTERPRISES - Petar Nikolov, Stanislav Dimitrov
	IMPROVEMENT OF THE TECHNICAL-ECONOMICAL AND ECOLOGICAL INDICATORS OF WOODWORKING AND FURNITURE ENTERPRISES THROUGH AIR RECUPERATION IN THEIR VENTILATION INSTALLATIONS - Petar Nikolov, Raiko Stanev
	APPLICATION AND TRENDS IN CNC MACHINES IN THE FURNITURE INDUSTRY IN BULGARIA - Aleksandar Doichinov, Pavlin Vitchev
	INVESTIGATION OF ATMOSPHERE SUSTAINABILITY OF PROTECTIVE-DECORATIVE COATINGS – PART I - Vladimir Mihailov, Todor Petkov, Verjina Lozanova-Aleksieva
	COMPARATIVE INDICATORS OF LIGHTWEIGHT STRUCTURAL ELEMENTS OF WOODEN PREFABRICATED BUILDINGS - Vasil Merdzhanov, Vladimir Mihailov, Todor Petkov
	STUDENTS' WORK DIARIES: VISUAL IMPRESSIONS OF A DESIGN PROJECT STUDY MODULE - Angelova, D., Raycheva, R., Vodenova, P., Tasheva S.
10:45 – 12:30	SESSION 8, Zahari Zograf conference hall Poster session
	ASSESSMENT OF NATURAL DISTURBANCES IN FOREST AREAS BY REMOTE METHODS - Svetoslav Anev, Sonya Damyanova, Adriana Marinova, Ina Ivanova, Daniela Tsoneva
	COMPOSITION IN THE 21ST CENTURY: GESTALT AND INTUITIVE DESIGN - Stela Tasheva
	INVESTIGATION OF THE INFLUENCE OF SOME FACTORS ON THE STRENGTH AND STIFFNESS OF JOINTS WITH STAPLES AND GUSSET PLATES - Desislava Hristodorova, Nelly Staneva
	SELECTION OF MODES FOR CO2 LASER HEAT TREATMENT WHEN ENGRAVING COMPLEX GRAPHIC IMAGES ON PLYWOOD - Zhivko Gochev, Pavlin Vitchev, Yuzlem



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	Aziz , Tihomir Stanev
	EVALUATION OF THE QUALITY OF SURFACES PROCESSED WITH HAND-GUIDED CNC MILLING MACHINE - Pavlin Vitchev, Zhivko Gochev, Engindzhan Halim
	OPPORTUNITIES FOR OPTIMIZATION OF PRODUCTION ACTIVITIES AND COST OF PRODUCTION IN THE FURNITURE INDUSTRY - Elena Nikolova, Desislava Hristodorova
	RESTORATION OF BEECH FORESTS AFTER NATURAL DISTURBANCES - Sonya Damyanova, Svetoslav Anev, Adriana Marinova, Ina Ivanova, Daniela Tsoneva
	DATA ENVELOPMENT ANALYSIS OF FACTORS FOR FOREST INDUSTRY WAGES AND SALARIES LEVELS IN NUTS 2 REGIONS OF BULGARIA - Nikolay Neykov, Radostina-Popova-Terziyska, Emil Kitchoukov
	Technical Secretary: Chief Assist. Prof. Todor Petkov
12:30 – 13:30	LUNCH
13:30 – 14:30	SESSION 9, Zahari Zograf conference hall OFFICIAL CLOSURE OF THE CONFERENCE
15:00	Departure from Rila Hotel
15:00 – 16:00	CULTURAL PROGRAM- TOURIST TOUR IN SAMOKOV CITY (In the past, Samokov was a centre of handicrafts and art, with notable figures like Zahari Zograf, Hristo Dimitrov and Nikola Obrazopisov. The town's name is a compound word of "samo" and "kov", respectively meaning "self" and the root of the verb "forge, hammer", and comes from the <i>samokov</i> , a mechanical forge powered by water, since the town of Samokov was a major iron-producing centre during the Middle Ages.)
16:30	Departure from Samokov City
18:00	Arrival in the parking lot of the University of Forestry in Sofia

Dear Participants,

For ensuring well-organized sessions and sufficient time for discussions, the following recommendations are made for paper presentations:

- Presentations should be 7 minutes long and should include topic introduction, statement of objectives, methods used, main results, conclusions and recommendations for future research;
- Discussions involving questions and answers should be 3 minutes long immediately after the paper presentation;
- Each presenter should upload his presentation (prepared in English according to the requirements provided on the conference website: ino.ltu.bg) on the computer before the relevant session.

