



FEDERATION OF THE SCIENTIFIC ENGINEERING UNIONS (FSEU)

*IX INTERNATIONAL SCIENTIFIC CONFERENCE*



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*XII INTERNATIONAL SCIENTIFIC CONGRESS*



**AGRICULTURAL MACHINERY**

**P R O G R A M**

**ORGANIZER:**

SCIENTIFIC-TECHNICAL UNION OF MECHANICAL ENGINEERING

*26.06 – 29.06.2024*

*VARNA, BULGARIA*

# TIME SCHEDULE

## 18.06.2024 – TUESDAY

	<b>PUBLICATION OF ALL REPORTS</b>	
17:00	PROCEEDING "International Scientific Conference "INDUSTRY 4.0", ISSN 2535-0153 (Print), ISSN 2535-0161 (Online)	<a href="http://industry-4.eu/winter/proceedings.html">industry-4.eu/winter/proceedings.html</a>
17:00	PROCEEDING „ International Scientific Congress AGRICULTURAL MACHINERY” - ISSN 2535-0269 (Print) ISSN 2535-0277 (Online)	<a href="http://www.agrimachinery.net/proceedings.html">www.agrimachinery.net/proceedings.html</a>

## 26.06.2024 - WEDNESDAY

16:00 – 20:00	REGISTRATION	IN THE CONGRESS CENTER
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## 27.06.2024 - THURSDAY

08:00 – 10:00	REGISTRATION	IN THE CONGRESS CENTER
10:00 – 10:15	OPENING OF THE EVENTS	CONFERENCE HALL 1
10:15 – 12:30	PLENARY SESSION	CONFERENCE HALL 1
12:30	COLLECTIVE PICTURES OF THE PARTICIPANTS	ON THE STAIRCASE IN FRONT OF THE HOTEL ENTRANCE
12:30 - 14:00	<b>LUNCH BREAK (NO LUNCH PROVIDED)</b>	
14:00 – 16:00	ORAL PRESENTATIONS Conference "INDUSTRY 4.0"	CONFERENCE HALL 1
	ORAL PRESENTATIONS Congress "AGRICULTURAL MACHINERY"	CONFERENCE HALL 2
16:00 – 16:30	COFFEE BREAK	CONFERENCE BAR
16:30 – 18:00	ORAL PRESENTATIONS Conference "INDUSTRY 4.0"	CONFERENCE HALL 1

19:30 – 24:00	<b>"WELCOME" COCKTAIL ON THE TERRACE OF THE MAIN RESTAURANT</b>
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## 28.06.2024 - FRIDAY

10:00	CLOSING OF THE CONFERENCE AND THE CONGRESS - WINE AND CHEESE PARTY	CONFERENCE BAR
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## CORRESPONDENT PARTICIPATION

### 27.06.2024 - THURSDAY

10:00	OPENING OF THE CONFERENCE OPENING OF THE CONGRESS	<a href="http://www.industry-4.eu/summer">www.industry-4.eu/summer</a> <a href="http://www.agrimachinery.net">www.agrimachinery.net</a>
10:00-16:00	QUESTIONS TO THE AUTHORS OF ALL REPORTS	<a href="mailto:office@industry-4.eu">office@industry-4.eu</a> <a href="mailto:office@agrimachinery.net">office@agrimachinery.net</a>
16:00	PUBLICATION OF ALL QUESTIONS	<a href="http://www.industry-4.eu/summer">www.industry-4.eu/summer</a> <a href="http://www.agrimachinery.net">www.agrimachinery.net</a>

### 28.06.2024 - FRIDAY

08:00-12:00	ANSWERS TO THE QUESTIONS	<a href="mailto:office@industry-4.eu">office@industry-4.eu</a> <a href="mailto:office@agrimachinery.net">office@agrimachinery.net</a>
12:00	PUBLICATION OF ALL ANSWERS	<a href="http://www.industry-4.eu/summer">www.industry-4.eu/summer</a> <a href="http://www.agrimachinery.net">www.agrimachinery.net</a>
17:00	CLOSING OF THE CONFERENCE	<a href="http://www.industry-4.eu/summer">www.industry-4.eu/summer</a> <a href="http://www.agrimachinery.net">www.agrimachinery.net</a>

# SCIENTIFIC PROGRAM

27.06.2024 10:00 – 10:15	OPENING OF THE EVENTS	CONFERENCE HALL 1
	CHAIRMAN: PROF. D.SC. DHC GEORGI POPOV	

27.06.2024 10:15 – 12:30	<b><u>PLENARY SESSION</u></b>	CONFERENCE HALL 1
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CHAIR: PROF. DR. DANIELA NIKOLOVA (USA)

	ORAL PRESENTATIONS	INDUSTRY 4.0		
1	CYBERSECURITY OF THE AUTONOMOUS VEHICLES AS CYBER-PHYSICAL SYSTEMS	Magdalena Puncheva-Marina <sup>1</sup> , Ninoslav Marina <sup>2</sup> <sup>1</sup> MIT University, Skopje <sup>2</sup> University for Information Science and Technology "St. Paul The Apostle", Ohrid	50	NM
2	IMPACT OF BRAIN THINKING PREFERENCE ON ENGINEERING PROJECT PERFORMANCE	Eng. Saja Al-Btoosh MSc, Salloom A. Al-Juboori Mutah University	25	JO
3	A SIMPLE E-VOTING SYSTEM ENSURING IDENTIFICATION, PRIVACY AND VERIFIABILITY	Prof. Dr. Mariam Haroutunian, Karen Mastoyan, Arsen Margaryan Institute for Informatics and Automation Problems of NAS RA, Yerevan,	24	AM
4	CONTRASTIVE ANALYSIS OF USING JAPANESE FILLERS AND THE RELATIONSHIP BETWEEN FILLERS AND POLITENESS: JAPANESE, CHINESE, KOREAN AND VIETNAMESE	Dr. Chie Yamane-Yoshinaga Sanyo Gakuen Junior College, Okayama,	11	JP
	ORAL PRESENTATIONS	AGRICULTURAL MACHINERY		
5	STUDY OF THE TECHNOLOGICAL PROCESS OF OPERATION OF TRANSPLANTING MACHINES	Iurie Melnic, Vladimir Badiul, Vladimir Melnic, Mihail Cătană Technical University of Moldova, Chişinău	34	MD
6	IRRIGATION WATER MANAGEMENT FOR PLANTS IN KONYA-ŞEFIKCAN PUBLIC PARK OF TÜRKIYE	Harun Dinç, Bilal Acar Dept. of Farm Buildings and Irrigation, Faculty of Agriculture, University of Selçuk, Konya	13	TR

12:30	COLLECTIVE PICTURES OF THE PARTICIPANTS	ON THE STAIRCASE IN FRONT OF THE HOTEL ENTRANCE
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12:30 – 14:00	LUNCH BREAK (NO LUNCH PROVIDED)
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27.06.2024 14:00 – 16:00		<b><u>ORAL PRESENTATIONS</u></b> <b>INDUSTRY 4.0</b>		CONFERENCE HALL 1	
CHAIR: PROF. SALLOOM A. AL-JUBOORI (IQ)			CO-CHAIR: ASSOC. PROF. IRINA STAMBOLOVA (BG)		
7	EXTRACTED HANDAL SEED OIL ( CITRULLUS SEEDS) USED AS BIODIESEL FUEL IN INTERNAL COMBUSTION ENGINES	Ahmad O. Hasan Department of Mechanical Engineering, AL-Hussein Bin Talal University,	20	JO	
8	IMPLEMENTING PREDICTIVE ANALYSIS USING SELF-LEARNING DIGITAL TWINS AND IMAGE ANALYSIS WITH GPT-4 TURBO WITH VISION FOR INSPECTION AND REPAIR OF CONSTRUCTION	Chief Assistant Prof. PhD. Mateev M. Department of Computer-Aided Engineering – UACEG – Sofia	21	BG	
9	DEEP EYE - INTELLIGENT DEVICE FOR CREATING DIGITAL MODELS OF UNDERWATER TOPOGRAPHY	Zuzanna Schab, Marta Żelasko, Krzysztof Lalik, Krzysztof Mamcarz AGH university of Krakow	41	PL	
10	APPLICATION OF NEURAL NETWORKS IN UNDERWATER DRONE CONTROL	Jan Przepióra*, Krzysztof Mamcarz AGH University of Kraków	33	PL	
11	TRENDS IN NON-LINEAR MIMO OBJECTS CONTROL IN THE ERA OF INDUSTRY 4.0: THE USE OF ARTIFICIAL NEURAL NETWORKS	Patryk Bałazy*, Urszula Jachymczyk AGH University of Krakow,	37	PL	
12	CORPORATE CULTURE AND TEAMWORK IN THE DIGITAL ERA	Nadezda Jankelova University of Economics in Bratislava	04	SK	

27.06.2024 14:00 – 16:00		<b><u>ORAL PRESENTATIONS</u></b> <b>AGRICULTURAL MACHINERY</b>		CONFERENCE HALL 2	
CHAIRMAN: PROF. PAVOL FINDURA (SK)			CO-CHAIR: PROF. URSZULA MALAGA-TOBOLA (PL)		
13	DIGITAL TECHNOLOGY FOR DETERMINING QUALITY INDICATORS AND CLASSIFICATION OF APPLE FRUITS BASED ON COMPUTER VISION AND DEEP LEARNING	Prof. Jakhfer Alikhanov, PhD Aidar Moldazhanov, PhD Akmaral Kulmakhambetova, Dmitriy Zinchenko, Azimzhan Azizov, Alisher Nurtuleuov, Dat Sarsenbekuly Kazakh National Agrarian Research University, Almaty	22	KZ	
14	OPTIMIZING AGROCHEMICAL DELIVERY: THE ROLE OF TANK MIX SPRAY ADJUVANTS IN AGRICULTURAL DRONE SPRAYERS	Michail Semenišin Vytautas Magnus University Agricultural Academy	06	LT	
15	JUSTIFICATION OF THE NUMERICAL METHOD AND DEVELOPMENT OF AN ALGORITHM FOR DETERMINING THE QUALITY INDICATORS OF POTATO SEED TUBERS	PhD Shynybay Zh.S. <sup>1</sup> , PhD Moldazhanov A.K. <sup>2</sup> , Bakytova M.B. <sup>2</sup> , Zinchenko D.A. <sup>2</sup> <sup>1</sup> Almaty University of Power Engineering and Telecommunications, Almaty <sup>2</sup> Kazakh State Agrarian Research University, Almaty	23	KZ	
16	REDUCING THE RISK OF HEAT STRESS FOR LIVESTOCK DEVELOPMENT IN KAZAKHSTAN	Shurat Sydykov, Nesipbek Alibek, Asan Baibolov*, Amanzhol Tokmoldaev, Symbat Charibayeva, Gulnara Akhmetkanova Kazakh National Agrarian Research University, Almaty	24	KZ	
17	THEORETICAL BASIS FOR CALCULATING RELIABILITY INDICATORS OF AGRICULTURAL MACHINES	Jemal Katsitadze <sup>1</sup> , Zaur Phutkaradze <sup>1</sup> , Giorgi Kutelia <sup>2</sup> . Academy of Agricultural Sciences of Georgia. Tbilisi, Georgia. <sup>1</sup> Scientific-Research Center of Agriculture of Georgia. Tbilisi, Georgia. <sup>2</sup>	05	GE	

18	RESEARCH AND RESTORATION OF RURAL AREAS OF ACTIVE AND PASSIVE WORKING BODIES USING GEORGIAN RAW MATERIAL (GUMBOIL)	Giorgi Kutelia <sup>1</sup> , Jemal Katsitadze <sup>1</sup> , Zaur Phutkaradze <sup>2</sup> , Ioseb Abuladze <sup>2</sup> . Academy of Agricultural Sciences of Georgia. Tbilisi, Georgia. <sup>1</sup> Scientific-Research Center of Agriculture of Georgia. Tbilisi, Georgia. <sup>2</sup>	07	GE
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16:00 – 16:30	COFFEE BREAK	CONFERENCE BAR
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27.06.2024 16:30 – 18:00	<b><u>ORAL PRESENTATIONS</u></b> <b>INDUSTRY 4.0</b>		CONFERENCE HALL 1	
CHAIRMAN: PROF. KRZYSZTOF LALIK (PL)		CO-CHAIRMAN: ASSOC. PROF. NIKOLAY NETOV (BG)		
19	APPLICATION OF CONVOLUTIONAL NETWORKS TO DETECT THE OPERATING PHASES OF ENERGY SYSTEMS USING A BIOMASS BOILER AS AN EXAMPLE	Szymon Podlasek*, Piotr Książek AGH University of Krakow,	38	PL
20	REVIEW OF FEATURE SELECTION METHODS FOR PREDICTIVE MAINTENANCE SYSTEMS	Urszula Jachymczyk, Paweł Knap AGH University of Krakow,	39	PL
21	A SINGLE-BOARD COMPUTER BASED DISTRIBUTED SYSTEM FOR INTERNAL AND EXTERNAL SOUND MONITORING	Piotr Książek, Karol Buchman, Adam Pilch AGH university of Krakow	31	PL
22	ADVANCES IN SENSORY SYSTEMS FOR UNMANNED UNDERWATER VEHICLES: A PRELIMINARY REVIEW	Krzysztof Mamcarz AGH university of Krakow	43	PL
23	UNIFIED FRAMEWORK FOR PDM ALGORITHM DEVELOPMENT: THE PDM-TOOLS ARCHITECTURE	Paweł Knap*, Urszula Jachymczyk AGH University of Krakow,	44	PL
24	SIMULATION EXPERIMENT FOR THE FOLLOW-UP CONTROLLER OF THE MIMO SYSTEM	Kamil Pieprzycki, Urszula Jachymczyk AGH University of Krakow	46	PL

27.06.2024 10:00 – 18:00 28.06.2024 09:00 – 12:00	<b><u>PERSONAL PARTICIPATION</u></b>		CONFERENCE HALL 1	
	<b>POSTER PRESENTATIONS</b>	<b>INDUSTRY 4.0</b>		
25	INVESTIGATION OF THE STRESS-STRAIN STATE IN THE IMPLEMENTATION OF A NEW INNOVATIVE METHOD FOR OBTAINING HARDENED SCREW FITTINGS	Sergey Lezhnev <sup>1</sup> , Abdrakhman Naizabekov <sup>2</sup> , Evgeny Panin <sup>3</sup> , Andrey Tolkushkin <sup>1</sup> , Dmitry Kuis <sup>4</sup> , Alexander Arbuz <sup>5</sup> , Pavel Tsyba <sup>6</sup> <sup>1</sup> Rudny Industrial Institute, Rudny, Kazakhstan <sup>2</sup> Innovative University of Eurasia, Pavlodar, Kazakhstan <sup>3</sup> Karaganda Industrial University, Temirtau, Kazakhstan <sup>4</sup> Belarusian State Technological University, Minsk, Belarus <sup>5</sup> Nazarbayev University, Astana, Kazakhstan <sup>6</sup> LLP "Promtech Perspektiva", Karaganda, Kazakhstan	01	KZ BY
26	DESIGN OF A LIFTING MACHINE FOR CONTAINER TECHNOLOGY ON LANDFILLS	Sergey Kuzmin, Andrey Turbit, Rustem Iskakov Rudny Industrial University, Rudny	02	KZ

27	MICROSTRUCTURE EVOLUTION DURING ROLLING IN RELIEF ROLLS WITH AN ASYMMETRY FACTOR ACCORDING TO VARIOUS TECHNOLOGICAL SCHEMES	Evgeniy Panin <sup>1</sup> , Alexandr Arbuz <sup>2</sup> , Almas Yerzhanov <sup>1</sup> , Dmitry Kuis <sup>3</sup> , Aibol Esbolat <sup>1</sup> <sup>1</sup> Karaganda Industrial University, Temirtau, Kazakhstan <sup>2</sup> Nazarbayev University, Astana, Kazakhstan <sup>3</sup> Belarusian State Technological University, Minsk, Belarus	03	KZ BY
28	EXERGY ANALYSIS OF A TWO-CYLINDER STEAM TURBINE FROM COMBINED CYCLE POWER PLANT AT THREE OPERATING REGIMES	PhD. Mrzljak Vedran, PhD. Anđelić Nikola, PhD Student Baressi Šegota Sandi, Prof. PhD. Prpić-Oršić Jasna Faculty of Engineering, University of Rijeka, Rijeka, Croatia	08	HR
29	BIOSYNTHESIS OF ZnO NANOPARTICLES AS POTENTIAL CORROSION INHIBITORS	D. Stoyanova <sup>1</sup> , I. Stambolova <sup>1</sup> , M. Shipochka <sup>1</sup> , O. Dimitrov <sup>2</sup> , P. Markov <sup>1</sup> , K. Kamburova <sup>3</sup> , Ts. Radeva <sup>3</sup> 1-Institute of General and Inorganic Chemistry, Bulgarian Academy of Sciences 2-Institute of Electrochemistry and Energy Systems "Acad. Evgeni Budevsky" Bulgarian Academy of Sciences, Sofia 3-Institute of Physical Chemistry "Acad. R. Kaishev", Bulgarian Academy of Sciences, Sofia	10	BG
30	FABRICATION AND APPLICATION OF INTERNET OF THINGS DEVICE USING SIGFOX NETWORK AND AT COMMANDS	Masaya Watanabe <sup>1</sup> , Hideaki Kanazawa <sup>2</sup> , Satoru Tada <sup>3</sup> , Masayuki Yamauchi <sup>3</sup> , Koji Kakugawa <sup>3</sup> , Takeshi Tanaka <sup>3,*</sup> , Katia Vutova <sup>4</sup> Hatano Electric Co Ltd., Hiroshima, Japan <sup>1</sup> Kanazawa Transportation Co., Ltd., Tokyo, Japan <sup>2</sup> Hiroshima Institute of Technology, Hiroshima, Japan <sup>3</sup> Institute of Electronics, Bulgarian Academy of Sciences, Sofia, Bulgaria <sup>4</sup>	18	JP BG
31	PROTOTYPE AND CHARACTERISTIC MEASUREMENT OF LED-LIT PET BOTTLE HANDMADE LANTERN WITH BABY MILK DROPPED INTO WATER	Mayumi Tanaka <sup>1</sup> , Keiko Ishihara <sup>2</sup> , Akira Okamoto <sup>2</sup> , Yuko Iwahori <sup>3</sup> , Satoru Tada <sup>4</sup> , Masayuki Yamauchi <sup>4</sup> , Koji Kakugawa <sup>4</sup> , Takeshi Tanaka <sup>4,*</sup> , Katia Vutova <sup>5</sup> Hiroshima Prefectural Hiroshima Minami High School, Hiroshima, Japan <sup>1</sup> Hiroshima International University, Kure, Japan <sup>2</sup> TED Ltd. Tokyo, Japan <sup>3</sup> Hiroshima Institute of Technology, Hiroshima, Japan <sup>4</sup> Institute of Electronics, Bulgarian Academy of Sciences, Sofia, Bulgaria <sup>5</sup>	19	JP BG
32	STATISTICAL PROCESSING OF DATA FROM THE OPERATION OF A PHOTOVOLTAIC POWER PLANT	Svilen Rachev <sup>1</sup> , Raul Turmanidze <sup>2</sup> , Vazha Shilakadze <sup>2</sup> <sup>1</sup> Technical University – Gabrovo, Bulgaria <sup>2</sup> Georgian Technical University (GTU) – Tbilisi, Georgia	27	BG GE
33	DEVICE AND TECHNOLOGY FOR THE PRODUCTION OF FOAM GRANULES OF "BREATHABLE" COMPOSITE MATERIAL BASED ON HEAT-TREATED RICE HUSKS	Lyuben Lakov*, Bojidar Jivov, Marieta Gacheva, Krasimira Toncheva Bulgarian Academy of Sciences, Institute of Metal Science, Equipment and Technologies with Hydro and Aerodynamics Centre "Acad. A. Balevski"	30	BG

34	EXPERIMENTAL SELF-CLEANING GLASS COATINGS FOR PHOTOVOLTAIC SYSTEMS PLACED IN A REAL ENVIRONMENT	Stancho Yordanov <sup>1</sup> , Tatyana Ivanova <sup>2</sup> , Mihaela Aleksandrova <sup>1</sup> , Vladimir Petkov <sup>1</sup> Bulgarian Academy of Sciences, Institute of Metal Science, Equipment and Technologies with Hydro- and Aerodynamics Centre "Acad. Angel Balevski", Sofia, Bulgaria <sup>2</sup> Central Laboratory of Solar Energy and New Energy Sources, Bulgarian Academy of Sciences,	32	BG
35	ON SOME ASPECTS OF "OPEN DATA"	Nikolay Netov, Kamen Spassov FEBA, Sofia University "St. Kl. Ohridski", Sofia	35	BG
36	THE PROMISES AND PRACTICES OF DIGITIZATION IN BULGARIAN PUBLIC SCHOOLS	Hristova, M., Netov, N., Netova, D. Sofia University "St. Kliment Ohridski",	40	BG
37	INVESTIGATION OF COMPOSITE BUILDING ELEMENTS IN A REAL ENVIRONMENT	Krasimira Toncheva Bulgarian Academy of Sciences, Institute of Metal Science, Equipment and Technologies with Hydro and Aerodynamics Centre "Acad. A. Balevski	45	BG
38	UTILIZATION OF WASTE CHROMIUM ELECTROLYTE BY ADDITION OF Al <sub>2</sub> O <sub>3</sub> NANOPARTICLES TO OBTAIN THIN CHROMIUM COATINGS	Vladimir Petkov, Mihaela Aleksandrova, Stancho Yordanov, Shaban Uzun Bulgarian Academy of Sciences, Institute of Metal Science, Equipment and Technologies with Hydro- and Aerodynamics Centre "Acad. Angel Balevski"	47	BG

27.06.2024 10:00 – 18:00 28.06.2024 09:00 – 12:00	<b><u>PERSONAL PARTICIPATION</u></b>	<b>CONFERENCE HALL 2</b>		
	<b>POSTER PRESENTATIONS</b>	<b>AGRICULTURAL MACHINERY</b>		
39	INFLUENCE OF WELDING SPEED ON THE FORMATION OF ARMORED COVERS AT RESTORATION OF CAST IRON PARTS IN ARGON	Prof. Nikolov M. DSc University of Ruse	01	BG
40	MAINTENANCE AND REPAIR AN IMPORTANT PART OF THE CIRCULAR ECONOMY	Prof. Nikolov M. DSc, Prof. Kangalov P. PhD University of Ruse	02	BG
41	EVALUATION OF THE WORK QUALITY OF SEEDING TECHNIQUES IN SOIL PROTECTION TECHNOLOGIES OF SOIL TILLAGE	Pavol Findura <sup>1</sup> , Miroslav Prístavka <sup>1*</sup> , Hristo Beloev <sup>2</sup> , Plamen Kangalov <sup>2</sup> , Mitko Nikolov <sup>2</sup> , Maciej Kubon <sup>3</sup> , Urszula Malaga-Tobola <sup>3</sup> , Erik Lavrík <sup>1</sup> , Eugen Mizerák <sup>1</sup> Slovak University of Agriculture in Nitra, Slovakia <sup>1</sup> Angel Kanchev University of Ruse, Ruse, Bulgaria <sup>2</sup> University of Agriculture in Krakow, Poland <sup>3</sup>	10	SK BG PL

42	WASTE LOGISTICS IN THE ASPECT OF A CLOSED LOOP ECONOMY	Maciej Kuboń <sup>1,2*</sup> , Dariusz Kwasniewski <sup>1</sup> , Urszula Malaga-Tobola <sup>1</sup> , Pavol Findura <sup>3</sup> , Miroslav Prístavka <sup>4</sup> , Olivia Kłosowska <sup>5</sup> Department of Production Engineering, Logistics and Applied Computer Science, Faculty of Production and Power Engineering, University of Agriculture in Kraków <sup>1</sup> Faculty of Technical Sciences and Design Arts, National Academy of Applied Sciences in Przemysł <sup>2</sup> Institute of Agricultural Engineering, Transport and Bioenergetics, Slovak University of Agriculture in Nitra <sup>3</sup> Institute of Design and Engineering Technologies, Slovak University of Agriculture in Nitra <sup>4</sup> Faculty of Environmental Engineering and Geodesy, University of Agriculture in Kraków <sup>5</sup>	16	PL SK
43	INFLUENCE OF THE WORKING ELEMENTS OF THE DIGGING UNIT OF A CARROT HARVESTER ON SOIL DEFORMATION	Wojciech Tanaś, Mariusz Szymanek Department of Agricultural, Forest and Transport Machinery, University of Life Sciences in Lublin	11	PL
44	3D SCANNING AS AN INNOVATIVE METHOD TO EVALUATION AGRICULTURE TIRES DEFORMATION	WeronikaPtak, Marek Brennensthul, JarosławCzarnecki, Agata Małecka Wroclaw University of Environmental and Life Sciences, Institute of Agricultural Engineering	21	PL
45	INFLUENCE OF IRRIGATION REGIME AND MINERAL FERTILIZATION ON THE GROWTH INDEX OF THREE VARIETIES OF TOMATOES GROWN IN GLASS GREENHOUSES USING AN ECOLOGICAL AND WATER-SAVING IRRIGATION TECHNIQUE	Rumyana Kireva <sup>1</sup> , Miho Mihov <sup>1</sup> , Viktoriya Kancheva <sup>1</sup> , Ivan Mortevev <sup>1</sup> , Daniela Ganeva <sup>2</sup> , Ivanka Tringovska-Mendeveva <sup>2</sup> , Stanislava Grozeva-Tileva <sup>2</sup> <sup>1</sup> N. Poushkarov Institute for Soil Science, Agrotechnology and Plant Protection, Agricultural Academy, Sofia, <sup>2</sup> Maritsa Vegetable Crop Research Institute Agricultural Academy	26	BG
46	CORRECTION OF THE INTER-REPAIR PERIOD OF AGGREGATES /NODES / OF THE MACHINES	Prof. Dr. M. Mihov <sup>1</sup> , Iurie Melnic <sup>2</sup> <sup>1</sup> Institute of Soil Science, Agrotechnology and Plant Protection "N. Pushkarov", Sofia, Bulgaria <sup>2</sup> Technical University of Moldova, Chişinău, Republic of Moldova	33	BG MD

<b>19:30 – 24:00</b>	<b>“WELCOME” COCKTAIL ON THE TERRACE OF THE MAIN RESTAURANT</b>
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## CORRESPONDENT PARTICIPATION “INDUSTRY 4.0”

THURSDAY (29.06)	10:00 – 16:00	SESSION: TECHNOLOGICAL BASIS OF “INDUSTRY 4.0” DOMINANT TECHNOLOGIES IN “INDUSTRY 4.0”		
FRIDAY (30.06)	08:00 – 12:00			
47	FROM 3D SCANNING, REVERSE ENGINEERING TO REAL PART PRODUCTION OF PERSONALIZED CAR PARTS	Erald Piperi*, Ilo Bodi, Artan Hoxha Polytechnic University of Tirana, Albania	07	AL
48	EXPANDING THE CAPABILITIES OF DATA TRANSMISSION TECHNOLOGY TO IMPROVE THE EFFICIENCY OF MULTI-CHANNEL COMMUNICATION SYSTEMS	Tatiana Sestacova, Gherman Sorochin, Technical University Chisinau	09	MD
49	PILOT PROJECT FOR AN INTEGRATED COMPLEX FOR CLEAN SOIL-BASED PRODUCTION, HARVEST AND DELIVERY (LOGISTIC OPERATIONS) OF ICEBERG LETTUCE	Ivan Gramatikov <sup>1</sup> , Teodor Georgiev <sup>2</sup> , Krasimir Kumchev <sup>3</sup> , Kostadin Kostadinov <sup>4</sup> , Marin Midilev <sup>5</sup> Freelancer and Association Agrorobotika founder <sup>1</sup> , Robco Smart <sup>2</sup> , Chairman at the Association of Agrorobotika <sup>3</sup> , Association Agrorobotika member, VSI Plovdiv <sup>4</sup> , Representative of the Cluster for Electric Mobility <sup>5</sup>	13	BG
50	ENHANCING OCR ACCURACY FOR ID-1 DOCUMENTS WITH SECURITY FEATURES THROUGH MACHINE LEARNING-DRIVEN IMAGE OPTIMIZATION	Alba Haveriku, Besjana Muraku, Brunela Karamani, Hakik Paci* Polytechnic University of Tirana,	14	AL
51	USING ARTIFICIAL NEURAL NETWORKS TO MODEL CLIMATE DATA TO ADAPT TRANSPORT INFRASTRUCTURE TO CLIMATE CHANGE	Stoyanka Ivanova University of Architecture, Civil Engineering and Geodesy (UACEG) – Sofia	15	BG
52	MODELING SOLAR DATA USING ARTIFICIAL NEURAL NETWORKS FOR SOLAR APPLICATIONS IN TRANSPORT INFRASTRUCTURE	Stoyanka Ivanova University of Architecture, Civil Engineering and Geodesy (UACEG) – Sofia	16	BG
53	DESIGNING THE SPINAL COLUMN OF A QUADRUPEL ROBOT BY USING ADDITIVE MANUFACTURING: A COMPREHENSIVE APPROACH	Ilo Bodi <sup>1,*</sup> , Erald Piperi <sup>1</sup> , Pascal Doumalin <sup>2</sup> , Mariel Hoxha <sup>1</sup> Polytechnic University of Tirana, Albania <sup>1</sup> Institut Pprime, UPR CNRS 3346, Université de Poitiers <sup>2</sup>	22	AL FR
54	PHOTOLUMINESCENCE PROPERTIES OF SELF-CLEANING COATINGS ON GLASSES CONTAINING EU2O3	Assoc. Prof. Dr. Stancho Yordanov Bulgarian Academy of Sciences, Institute of Metal Science, Equipment and Technologies with Hydro- and Aerodynamics Centre “Acad. Angel Balevski”,	23	BG
55	ENERGY EFFICIENCY MEASURES TO REDUCE THE CARBON FOOTPRINT: A CASE STUDY OF TIRANA AIRPORT	Artan Hoxha <sup>1,*</sup> , Ardit Gjeta <sup>1</sup> , Majlinda Alcani <sup>1</sup> , Elona Caushi <sup>2</sup> , Albert Shira <sup>1</sup> Polytechnic University of Tirana, Faculty of Mechanical Engineering <sup>1</sup> , Environment Manager, Tirana Airport <sup>2</sup>	28	AL
56	PREPARATION AND DEPLOYMENT OF SECURE OVER-THE-AIR UPDATES FOR EMBEDDED DEVICES: CHALLENGES AND SOLUTIONS	Pavel Palurik, Michal Mikulasek, Lukas Jablonek Brno University of Technology, Brno	36	CZ
57	SMALL-SCALE PHOTOVOLTAIC POWER SYSTEMS: IDENTIFYING VULNERABILITIES AND RECOMMENDING SECURITY PROTOCOLS	MSc. Michal Mikulášek, MSc. Pavel Paluřík, MSc. Lukáš Jablončík Brno University of Technology	42	CZ

58	TECHNOLOGIES BETWEEN INDUSTRY 4.0 AND 5.0	PhD Licheva T. New Bulgarian University, Sofiq	48	BG
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## CORRESPONDENT PARTICIPATION AGRICULTURAL MACHINERY 2024

THURSDAY (29.06)	10:00 – 16:00	SESSION		
FRIDAY (30.06)	08:00 – 12:00	“MECHANIZATION IN AGRICULTURE”		
59	EXPERIMENTAL STUDIES OF A WHEELED TRACTOR RUNNING ON ALTERNATIVE FUEL	Prof., D.Sc. Eng. Zaharchuk V., Assoc. Prof., Ph.D. Eng. Zaharchuk O., Assoc. Prof., Ph.D. Eng. Savaryn P. Lutsk National Technical University, Lutsk,	03	UA
60	EXPERIMENTAL STUDY OF A FINGER SAFETY CLUTCH OF A SCREW CONVEYOR	Prof. Dr. Eng. Volodymyr Bulgakov <sup>1*</sup> ; Prof. Dr. Eng. Valerii Adamchuk <sup>2</sup> ; Assoc. Prof., PhD. Eng. Oleksandra Trokhaniak <sup>1</sup> <sup>1</sup> National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine <sup>2</sup> Institute of Mechanics and Automation of Agricultural Production of NAAS, Ukraine	08	UA
61	OPERATIONAL SOLUTIONS TO INCREASE EFFICIENCY MACHINE USE IN AGRICULTURE	Alshyn Altybayev Research and Production Center of Agroengineering, Almaty	09	KZ
62	BEGINNING OF AGRICULTURAL MACHINERY AND EQUIPMENT TESTING IN UKRAINE - FACTS AND HISTORICAL EVENTS	Assoc. Prof. Dr. Inna Savytska; Assoc. Prof. Dr. Oksana Bulgakova*; Assoc. Prof., PhD. Eng. Oleksandra Trokhaniak; Assoc. Prof., PhD. Eng. Maria Bondar National University of Life and Environmental Sciences of Ukraine, Kyiv	15	UA
63	THE USAGE OF UNMANNED AERIAL VEHICLES IN AGRICULTURE	Dace Laizane, Raimonds Lachauņieks Malnava College of Latvia University of Life Sciences and Technologies	18	LV
64	TECHNOLOGICAL PROCESS AND DESIGN FEATURES OF VIBRATING SEED DRYERS	Prof. Dr. Eng. Volodymyr Bulgakov <sup>1*</sup> ; Assoc. Prof., PhD. Eng. Oleksandra Trokhaniak <sup>1</sup> ; Postgraduate Student Olha Dubrovina <sup>2</sup> <sup>1</sup> National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine <sup>2</sup> Vinnytsia National Agrarian University, Ukraine	19	UA
65	DESIGN DEVELOPMENT OF A NEW UNIT FOR CASSETTE-FREE BREEDING OF GRAIN MOTHS IN THE PRODUCTION OF TRICHOGRAMS FOR PLANT PROTECTION	Volodymyr Bulgakov <sup>1*</sup> , Volodymyr Belchenko <sup>2</sup> , Nonna Pishchanska <sup>2</sup> , Valentyna Krutyakova <sup>2</sup> , Olha Dubrovina <sup>3</sup> , Oleksandra Trokhaniak <sup>1</sup> <sup>1</sup> National University of Life and Environmental Sciences of Ukraine, Ukraine; <sup>2</sup> Engineering and Technology Institute “Biotechnica”, Ukraine; <sup>3</sup> Vinnytsia National Agrarian University, Ukraine	27	UA

66	INVESTIGATION OF THE COOLING SYSTEM IN THE POULTRY HOUSE USING CFD	Assoc. Prof., Ph.D. Eng. V. Trokhaniak <sup>1*</sup> ; Prof. Dr. Eng. V. Gorobets <sup>1</sup> <sup>1</sup> National University of Life and Environmental Sciences of Ukraine, Kyiv	30	UA
<b>THURSDAY (29.06)</b>	<b>10:00 – 16:00</b>	<b>SESSION “CONSERVING OF THE RESOURCES”</b>		
<b>FRIDAY (30.06)</b>	<b>08:00 – 12:00</b>			
67	THE IMPACT OF EDUCATION ON THE UTILIZATION AND COMPREHENSION OF CHEMICAL FERTILIZERS AND PESTICIDES IN RELATION TO THE ENVIRONMENT. A CASE STUDY IN THE OHRID LAKE CATCHMENT AREA	PhD. Stud. ICKA Engjëllushe, Prof. Dr. CANCO Galantina Academia „Nehemiah Gateway“, Buçimas, Pogradec	25	AL
68	IMPACT OF MILITARY OPERATIONS ON AGRICULTURAL SOILS	Assoc. Prof., PhD. Eng. Oleksandra Trokhaniak National University of Life and Environmental Sciences of Ukraine, Kyiv,	28	UA
69	RECLAMATION OF LAND DISTURBED BY MILITARY OPERATIONS	Assoc. Prof., PhD. Eng. Oleksandra Trokhaniak <sup>1</sup> , Assoc. Prof., PhD. Eng. Larysa Kolomiiets <sup>2</sup> <sup>1</sup> National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine <sup>2</sup> National Scientific Centre, Institute of Agriculture of NAAS of Ukraine, Kyiv Region	29	UA
70	INFLUENCE OF DIFFERENT RATES OF IRRIGATION AND FERTILIZATION ON THE QUALITY INDICATORS OF THE FRUITS OF THREE GENOTYPES OF GREENHOUSE TOMATOES	Viktoriya Kancheva <sup>1</sup> , Rumyana Kireva <sup>1*</sup> , Miho Mihov <sup>1</sup> , Ivan Mortevev <sup>1</sup> , Daniela Ganeva <sup>2</sup> , Ivanka Tringovska-Mendeva <sup>2</sup> , Stanislava Grozeva-Tileva <sup>2</sup> <sup>1</sup> Institute of Soil Science, Agrotechnology and Plant Protection “Nikola Poushkarov” – Sofia <sup>2</sup> Maritsa Vegetable Crop Research Institute - Plovdiv	04	BG

<b>19:30 – 24:00</b>	<b>“WELCOME” COCKTAIL ON THE TERRACE OF THE MAIN RESTAURANT</b>
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**28.06.2024 (FRIDAY)**

<b>10:00</b>	<b>CLOSING OF THE CONFERENCE AND THE CONGRESS WINE AND CHEESE PARTY</b>	<b>CONFERENCE BAR</b>
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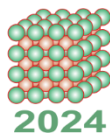
**NEXT CONFERENCE “INDUSTRY 4.0” – WINTER SESSION  
11.12 - 14.12.2024, BOROVETS, HOTEL “ELA”**

**NEXT CONFERENCE “INDUSTRY 4.0” – SUMMER SESSION  
NEXT CONGRESS “AGRICULTURAL MACHINERY 2025”  
25.06 - 28.06.2025, VARNA, HOTEL “FRÉDÉRIC JOLIOT-CURIE INTERNATIONAL HOUSE  
OF SCIENTISTS”.**

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XII INTERNATIONAL SCIENTIFIC CONFERENCE  
**ENGINEERING. TECHNOLOGIES. EDUCATION. SECURITY 2024**  
02-05.09.2024, VARNA, FRÉDÉRIC JOLIOT-CURIE IHS  
[www.techtos.net](http://www.techtos.net)



X INTERNATIONAL SCIENTIFIC CONFERENCE  
**MATERIAL SCIENCE.**  
**NONEQUILIBRIUM PHASE TRANSFORMATIONS 2024**  
02-05.09.2024, VARNA, FRÉDÉRIC JOLIOT-CURIE IHS  
[www.material-science.eu](http://www.material-science.eu)



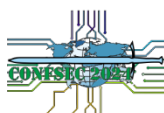
XXI INTERNATIONAL SCIENTIFIC CONGRESS - SUMMER SESSION  
**MACHINES. TECHNOLOGIES. MATERIALS 2024**  
04-07.09.2024, VARNA, FRÉDÉRIC JOLIOT-CURIE IHS  
[www.mtmcongress.com](http://www.mtmcongress.com)



XVII CONFERENCE FOR YOUNG RESEARCHERS  
**TECHNICAL SCIENCES. INDUSTRIAL MANAGEMENT 2024**  
04-07.09.2024, VARNA, FRÉDÉRIC JOLIOT-CURIE IHS  
[www.youngconference.com](http://www.youngconference.com)



IX INTERNATIONAL SCIENTIFIC CONFERENCE  
**CONSERVING SOILS AND WATER**  
09-12.12.2024, BOROEVETS, HOTEL ELA  
[www.conserving-soils.eu](http://www.conserving-soils.eu)



VIII INTERNATIONAL SCIENTIFIC CONFERENCE  
**CONFSEC 2024**  
09-12.12.2024, BOROEVETS, HOTEL ELA  
[www.confsec.eu](http://www.confsec.eu)



IX INTERNATIONAL SCIENTIFIC CONFERENCE - WINTER SESSION  
**INDUSTRY 4.0**  
11-14.12.2024, BOROEVETS, HOTEL ELA  
[www.industry-4.eu](http://www.industry-4.eu)



VIII INTERNATIONAL SCIENTIFIC CONFERENCE  
**MATHEMATICAL MODELING**  
11-14.12.2024, BOROEVETS, HOTEL ELA  
[www.mathmodel.eu](http://www.mathmodel.eu)



X INTERNATIONAL SCIENTIFIC CONFERENCE  
**HIGH TECHNOLOGIES. BUSINESS. SOCIETY 2025**  
03-06.03.2025, BOROEVETS, HOTEL ELA  
[www.hightechsociety.eu](http://www.hightechsociety.eu)



XXII INTERNATIONAL SCIENTIFIC CONGRESS - WINTER SESSION  
**MACHINES. TECHNOLOGIES. MATERIALS 2025**  
05-08.03.2025, BOROEVETS, HOTEL ELA  
[www.mtmcongress.com](http://www.mtmcongress.com)