NATIONAL AND INTERNATIONAL PROJECTS 2024.

Foreword

Within their scientiic research activities, the members of the Faculty of Mechanical Engineering have run and took part in the implementation of many national and international projects. This publication presents the projects that took place between 2018 and 2024. The featured projects can be divided into those supported under Science Fund of the Republic of Serbia, Center for the Promotion of Science, EU funding programmes (e.g., H2020, COST, Erasmus+, EUREKA), CERN, GEF and UNDP in the framework of multilateral and bilateral cooperation, and those commissioned by companies from abroad.

This continued the Faculty of Mechanical Engineering's tradition of contributing to international projects that represent a significant segment of activities conducted by past and present generations of professors and researchers. Participation in national and international projects has always been an excellent opportunity to initiate collaboration with colleagues from universities, research institutes, and companies from Serbia and around the world. In addition to creating conditions for expanding knowledge, this facilitated exchange of experiences and introduction of new methods, software packages, and ways of organizing scientific research activities, as well as development of team work which is of extreme importance.

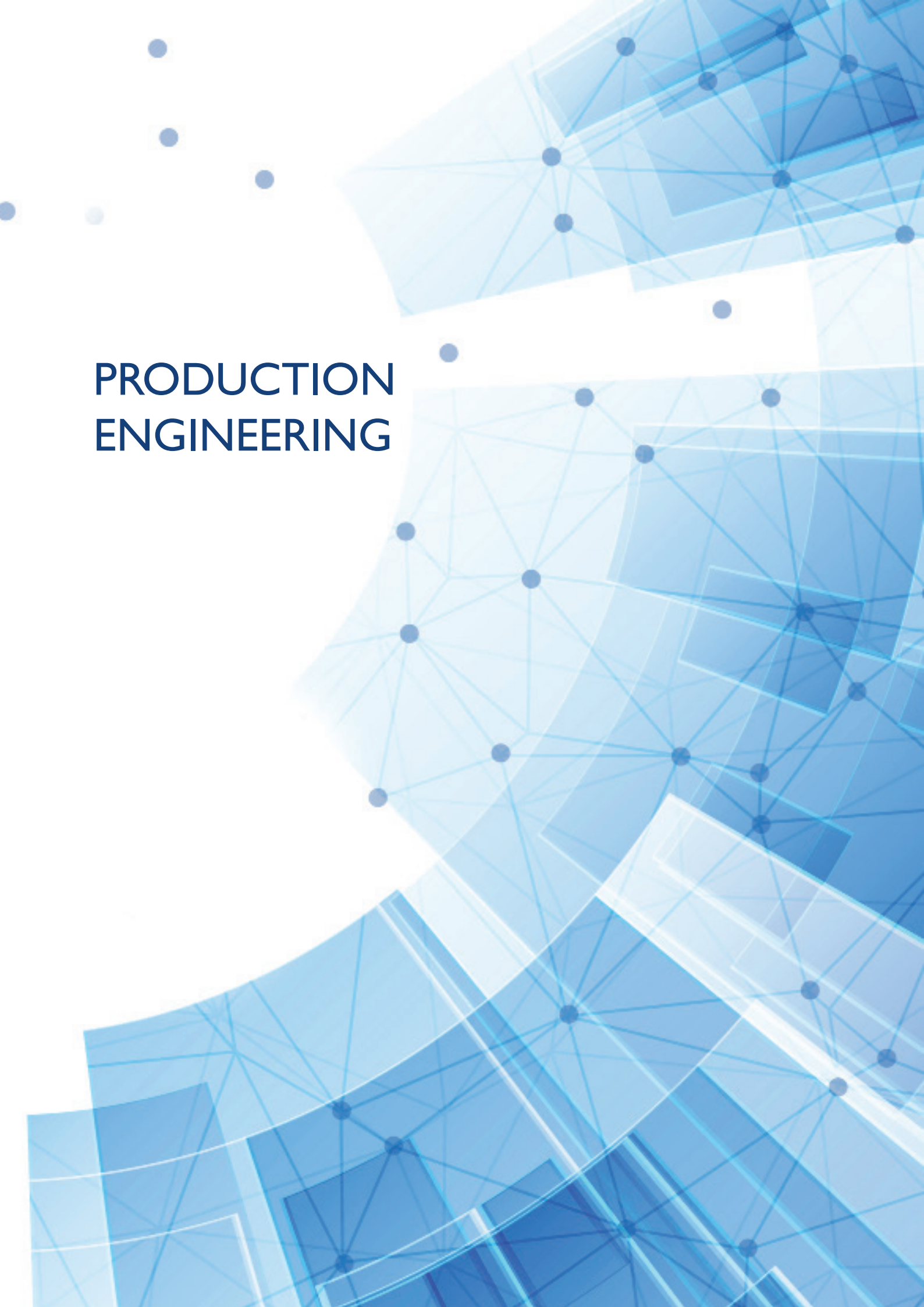
This publication has been prepared as an electronic document that will be updated with new projects. Over the years, we have had the pleasure of working with colleagues from national and international research institutions on different projects, which we hope to continue and grow through new projects.

Belgrade, November 2024.

DEPARTMENT

NATIONAL PROJECTS

PRODUCTION ENGINEERING



PROJECT TITLE

DEEP MACHINE LEARNING AND SWARM INTELLIGENCE-BASED OPTIMIZATION ALGORITHMS FOR CONTROL AND SCHEDULING OF CYBER-PHYSICAL SYSTEMS IN INDUSTRY 4.0

ACRONYM/ PROJECT ID

MISSION4.0

FUNDING PROGRAM

Science Fund of the Republic of Serbia - Program for Development of Projects in the Field of Artificial Intelligence

PROJECT COORDINATOR

Full Prof. Dr. Zoran Miljković, University of Belgrade, Faculty of Mechanical Engineering, Serbia

PROJECT COORDINATOR AT UB-FME

Full Prof. Dr. Zoran Miljković

PARTICIPANTS FROM UB-FME

Full Prof. Dr. Zoran Miljković, Full Prof. Dr. Bojan Babić, Full Prof. Dr. Uglješa Bugarić, Full Prof. Dr. Živana Jakovljević, Full Prof. Dr. Radiša Jovanović, Assoc. Prof. Dr. Milica Petrović, Assoc. Prof. Dr. Nikola Slavković, Teach. Asst. Dr. Andrija Petrović, Teach. Asst. Dušan Nedeljković, Teach. Asst. Aleksandar Jokić, Teach. Asst. Mitra Vesović, Jun. Res. Asst. Katarina Miljković, Jun. Res. Asst. Đorđe Jevtić, Jun. Res. Asst. Lara Laban, Jun. Res. Asst. Natalija Perišić.

PROJECT DESCRIPTION

The goal of the MISSION4.0 project is to build a systematic methodology for integrating deep machine learning and swarm intelligence-based techniques to achieve adaptable, reconfigurable and intelligent Cyber-Physical Production Systems for Industry 4.0. In order to achieve the desired goal, project team proposes novel interdisciplinary approaches for the main research directions: optimization of dynamic integrated process planning and scheduling (DIPPS); intelligent vision-based control of mobile robots used for transportation and manipulation tasks in manufacturing systems; and deep learning-based cybersecurity systems for communication between Cyber-Physical Systems (CPS). Frequent changes in market demands, as well as needs for diversified and customized products, require an effective system for dynamic scheduling of manufacturing entities. To achieve optimal utilization of manufacturing resources according to different criteria, MISSION4.0 proposes a methodology for DIPPS based on novel swarm optimization algorithms. Generated optimal scheduling plan provides the routes of mobile robot in order to transport all parts being manufactured to the corresponding machine tools. For a mobile robot to transport parts reliably in a partly unknown semi-structured manufacturing environment, an intelligent navigation methodology based on a stereo vision control system and deep reinforcement learning is proposed. Furthermore, an intelligent navigation system is integrated with deep learning-based direct visual servoing system for accurate and robust mobile robot positioning. To ensure that CPS in the manufacturing environment work reliably and securely, the system for cybersecurity of communication based on deep learning is proposed. The impact of Artificial Intelligence-based methodologies developed within the MISSION4.0 project will be reflected through the implementation of Industry 4.0 principles in the Serbian manufacturing industry (https://www.dsi.rs/en/about-us/).

KEY WORDS	Deep machine learning; Dynamic process planning and scheduling; optmization; swarm-intelligance; Robotics; visual servoing; stereo vision; cyber security; industry 4.0; cyber-physical systems
CONSORTIUM	2 - University of Belgrade, Faculty of Mechanical Engineering; Faculty of Philosophy, University of Belgrade
COUNTRIES	1
DURATION (start – end)	September 2020 – December 2022
TOTAL BUDGET - TOTAL (EUR)	199.949,18
BUDGET – UB-FME (EUR)	196.649,85
PROJECT WEBSITE	http://mission4-0.mas.bg.ac.rs/
CONTACT AT UB-FME	zmiljkovic@mas.bg.ac.rs

INDUSTRIAL ENGINEERING

PROJECT TITLE

SUPPORT SYSTEMS FOR SMART, ERGONOMIC AND SUSTAINABLE MINING MACHINERY WORKPLACES

ACRONYM/ PROJECT ID

SmartMiner

FUNDING PROGRAM

Science Fund of the Republic of Serbia - Green Program of Cooperation between Science and Industry

PROJECT COORDINATOR

Prof. Dr Vesna Spasojević Brkić, University of Belgrade, Faculty of Mechanical Engineering, Serbia

PROJECT COORDINATOR AT UB-FME

Prof. Dr Vesna Spasojević Brkić, FME UB, Srbija

PARTICIPANTS FROM UB-FME

Prof. Dr Vesna Spasojević Brkić, Prof. Dr Mirjana Misita, Prof. Dr Aleksandar Žunjić, Prof. Dr Uglješa Bugarić, Prof. Dr Ivan Mihajlović, Res. Assoc. Dr Goran Đurić, Teach. Asst. Martina Perišić Neda Papić, Teach. Asst. Natalija Perišić, Teach. Asst. Branislav Đorđević, Teach. Asst. Mikica Jovanović

PROJECT DESCRIPTION

Although the mining industry is the oldest one, it is still a major source of pollution with more people hurt or injured than in any other industry, while social conflicts around it are worldwide spread. The reason for the lack of progress is the most likely the fact that in current research streams technology-centered design dominates. The SmartMiner concept proposes a paradigm shift from pure technology to a Human and Data-Centric Engineering, which can be easily transferred to other industries, and develops solutions for raising the level of environmental quality in complex interactions between physical, behavioral and organizational processes field, by matching advanced operator I4.0&5.0 and society S5.0 standards.

Our original idea approval route starts with mining machinery operator wellbeing in its microenvironment and its cyclical alignment with stakeholders in value chain (9 stakeholders in SmartMiner). After development of smart, ergonomic, non-invasive and reliable operator aid systems for regulation of physical environment job stressors - noise, human vibration, lighting, temperature, air quality, workplace layout issues etc., which solve environmental and human health issues and influence overall performance, research passes to operator macroenvironment determined by organizational contextual factors which also impair sustainable development results.

Micro and macro levels are connected and balanced by real time analytics to fit high sustainability performance indicators in novel, flexible and scalable system, aimed to increasing productivity by 10-30% and production by 10-20% together with reducing emissions in order of 100 t/y/machine and decrease of accidents rate 15%.

Main expected results, beside at least 8 influential publications, are new technical solution applied at the international level (operator's ERGONOMIC adjustment SYSTEM) and PCT registered patent (SMART multi-sensorial SYSTEM) together with software system structural description model helpful in decision making on different organizational levels in TRL5, which lead to commercial DECISION SUPPORT SYSTEM.

KEY WORDS	Mining machinery, ergonomics, sustinability, operator
CONSORTIUM	University of Belgrade, Faculty of Mechanical Engineering; (UB-FME) University of Belgrade -Technical Faculty in Bor; (UB -TF Bor)
COUNTRIES	1
DURATION (start – end)	01.05.2023-01.05.2025.
TOTAL BUDGET - TOTAL (EUR)	179.658,06
BUDGET – UB-FME (EUR)	121.967,95
PROJECT WEBSITE	http://smartminer.mas.bg.ac.rs
CONTACT AT UB-FME	vspasojevic@mas.bg.ac.rs

THERMAL POWER ENGINEERING

PROJECT TITLE

IMPROVING OPERATIONAL FLEXIBILITY OF DECARBONIZED THERMAL POWER PLANTS WITH ENERGY STORAGE TOWARDS INCREASED RENEWABLE SOURCES UTILIZATION

ACRONYM/ PROJECT ID

TPP-RSU

FUNDING PROGRAM

Science Fund of the Republic of Serbia - Green Program of Cooperation between Science and Industry

PROJECT COORDINATOR

Prof. Dr Vladimir Stevanovic, University of Belgrade, Faculty of Mechanical Engineering, Serbia

PROJECT COORDINATOR AT UB-FME

Prof. Dr. Vladimir Stevanovic

PARTICIPANTS FROM UB-FME

Prof. Dr. Vladimir Stevanovic, Prof. Dr. Sanja Milivojevic, Senior Res. Assoc. Dr. Milica Ilic, Res. Assoc. Dr. Marko Jaric, Res. Assoc. Dr. Milan M. Petrovic, Prof. Dr. Nevena Stevanovic, Jun. Res. Asst. Milos A. Lazarevic

PROJECT DESCRIPTION

Development of retrofitted and advanced designs of thermal power plants in the Republic of Serbia is proposed, which should support a transition towards climate neutral, economically beneficial and operationally safe and reliable power fleet with a greater share of renewable energy utilization. Planned activities will provide decarbonised electricity generation by coal-fired power plants and their improved operational flexibility.

The research on decarbonisation will evaluate solutions for retrofits of coal-fired furnaces in utility steam boilers for the firing/co-firing of biomass, natural gas and hydrogen and deployment of CO2 capture and storage technologies. The research on increased flexibility of thermal power plants will assess energy storage in water tanks, steam accumulators, in molten salts and thermo-chemical storage, together with advanced balance-of-plant designs and operational procedures. Innovative solutions for implementation of steam accumulator into thermal power plants will be developed in order to increase plant flexibility to rapid power changes that are posed by primary and secondary frequency control of electric systems due to the increased share of renewables.

The decarbonisation of coal-fired power plants will prolong their exploitation and reduce the capital expenditures, while the improved flexibility will provide a capacity for power control of the electric system with increasing share of intermittent electricity production from wind and solar. These goals will be achieved by a comprehensive application of thermal-hydraulic, thermodynamic, combustion, techno-economic and multicriteria research methods and simulations. The project outcomes will contribute to (i) the green transition in energy sector through decrease of overall emissions from power plants, (ii) increase of thermal power plants efficiency, (iii) reduction of thermal power plants aging and increase of their reliability, and (iv) increased stability of electric power systems.

KEY WORDS	thermal power plants; energy efficiency; decarbonisation; flexibility of power systems; thermal energy storage; renewable energy sources
CONSORTIUM	1. Universidade Do Minho, Minho, Republic of Portugal, 2. University of Belgrade Faculty of Mechanical Engineering, Republic of Serbia
COUNTRIES	1 – Serbia
DURATION (start – end)	01.05.2023. – 30.04.2025.
TOTAL BUDGET - TOTAL (EUR)	153.749,28
BUDGET – UB -FME (EUR)	153.749,28
PROJECT WEBSITE	http://tpprsu.mas.bg.ac.rs/
CONTACT AT UB-FME	vstevanovic@mas.bg.ac.rs

PROCESS AND ENVIRONMENTAL PROTECTION ENGINEERING

PROJECT TITLE

ACTIVE CONDENSATION HYBRID SYSTEMS IN BIOMASS COMBUSTION

ACRONYM/ PROJECT ID

AC-BC

FUNDING PROGRAM

Science Fund of the Republic of Serbia - Program PRISMA

PROJECT COORDINATOR

Prof. Dr. Rade Karamarković, University of Kragujevac, Faculty of Mechanical and Civil Engineering in Kraljevo, Republic of Serbia

PROJECT COORDINATOR AT UB-FME

Assoc. Prof. Dr Dušan Todorović, Ph.D. Mech. Eng.

PARTICIPANTS FROM UB-FME

Prof. Dr. Aleksandar Jović, Prof. Dr. Dejan Radić, Assoc. Prof. Dr. Dušan Todorović, Assoc. Prof. Marko Obradović, Assis. Prof. Darko Radenković

PROJECT DESCRIPTION

The project goal is the simultaneous utilization of higher heating value (HHV) and reduction of particulate matter (PM) emissions from biomass boilers. In temperate climates depending on the environmental conditions, return water temperatures in the central and district heating systems are frequently above the dew point temperature of the flue gas (FG). The active condensation (AC) concept, which combines a condensation device and a heat pump (HP), utilizes the latent heat of FG at temperatures above its dew point.

Based on the concept, the project models and analyzes four systems that allow the utilization of waste and heat from renewable sources: (i) AC with quench and HP, (ii) AC with flue gas condenser (FGC) and HP that works as a heat pipe heat exchanger (HEX) too, (iii) AC with natural gas-fired compressor HP, and (iv) biomass-fueled absorption HP. It is important to point out that proposed systems (ii), (iii), and (iv) are the original solutions/ ideas of the project's team. In addition to the hybrid trait, the concept allows the reduction of PM emissions. The project envisages a quench (wet scrubber) and an FGC for the reduction of emissions in systems (i) and (ii), respectively. The quench will be designed to optimize water consumption, pressure drop, and separation of PM.

The FGC will be a shell and tube HEX equipped with turbulators that enhance heat transfer, clean the surface and reduce PM emissions. The aim is to build and experimentally investigate the systems (i) and (ii). The project should contribute scientific community with models, analyses and conclusions regarding the presented and similar AC hybrid systems, a quench and an FGC design, and an experience that stand in the way of the reliable and durable function of the designed systems. The project aims to encourage a sustainable and cost-effective implementation of this and similar concepts that would improve energy efficiency and reduce PM emissions in numerous biomass boiler rooms.

KEY WORDS
active condensation, biomass, combustion, heat pump, energy efficiency

CONSORTIUM
3

COUNTRIES
1

DURATION
(start – end)
03.01.2024 – 03.01.2027.

TOTAL BUDGET - TOTAL (EUR)
282.558,20

BUDGET – UB -FME (EUR)
170.393,28

PROJECT WEBSITE

CONTACT AT UB-FME

dtodorovic@mas.bg.ac.rs

THERMOMECHANICS

PROJECT TITLE	FORWARD-LOOKING FRAMEWORK FOR ACCELERATING HOUSEHOLDS' GREEN ENERGY TRANSITION
ACRONYM/ PROJECT ID	FF GREEN
FUNDING PROGRAM	Science Fund of the Republic of Serbia - Program PRISMA
PROJECT COORDINATOR	Prof. Dr. Dejan Ivezić, University of Belgrade, Faculty of Mining and Geology (UB-FMG)
PROJECT COORDINATOR AT UB-FME	Prof. Dr. Mirko Komatina
PARTICIPANTS FROM UB-FME	Prof. Dr. Mirko Komatina
PROJECT DESCRIPTION	The proposed project aims to facilitate and support green energy transition in households. The project should contribute by facilitating a sustainable households' transformation process aimed at decreasing environmental impact, increasing energy self-sufficiency and resistance to disturbances on the energy market, simultaneously ensuring high liveability and affordability for citizens. Fulfilling this aim requires a comprehensive approach composed of technological, social, urban planning, economic, financial and legal/regulatory perspectives and aspects. The project focuses on space heating/cooling and electricity consumption in households since all energy needs in the residential sector are related to these demands. Also, an objective is to research and analyze and model decentralized electricity generation within households' producers, which should direct the branch of households in a pathway towards positive energy districts. The energy transition of households based on renewable energy sources (RES) utilization and energy efficiency (EE) measures implementation, will be researched and processed through a collaborative approach throughout the whole process, from problem definition, the analysis of the current state, to the development of supporting tools, models, and solutions aiming to guide and assist in accelerating households' green transformation. It will integrate a forward-looking engineering approach in the utilization of RES, primarily the application of heat pumps, photovoltaic (PV) panels, solar thermal collectors (ST), hybrid systems (PV/T), and thermal storages, the participatory approach supported with all actors involved (stakeholders) and agent-based modeling (ABM), to reach a feasible and achievable roadmap for the energy transition. Wide acceptance of the determined roadmap will be obtained by deep analysis of households' energy-related decisions driven by behaviors, habits, and features supplemented by strong engineering knowledge. This innovative tool will be used in the policy-making process and should lead to wider utilization of RES and implementation of EE measures in households as well as energy production and storage. It will empower policymakers to formulate the most effective plans and associated policy measures and instruments for guiding households' behavior related to energy consumption/ production. The objectives supporting this aim are: Fostering an increase in the share of RES and efficiency of energy consumption in households. Collecting and processing socio-economic and cultural factors related to energy consumption in households. The methodology proposed in this project will be tested for the Serbian household sector and as such should include country specific obstacles. Improving energy management and fostering a decision-making process by incorporating an innovative tool in the process of energy planning, formulation of policy instruments, scenario development, and assessment of expected effects. Integration of an agent-based modeling (ABM) and participatory backcasting (PB) process in energy system modelling. Development of a roadmap for households' energy transition to horizon 2050 for a selected municipality. Establishment of communication channels between researchers, decision-makers, and social and market stakeholders.

KEY WORDS

CONSORTIUM

University of Belgrade - Faculty of Mining and Geology (UB-FMG), University of Belgrade, Faculty of Mechanical Engineering (UB-FME), University of Belgrade - Faculty of Philosophy (UB-FZF), University of Belgrade Faculty of Agriculture (AGRIF)

COUNTRIES

Serbia

DURATION
(start – end)

1.01.2024.-31.12.2026.

TOTAL BUDGET - TOTAL (EUR)

263.919,51

BUDGET – UB -FME (EUR)

24.139,21

PROJECT WEBSITE

https://ffgreen.rgf.bg.ac.rs/

CONTACT AT UB-FME

mkomatina@mas.bg.ac.rs

ENGINEERING MATERIALS AND WELDING, TRIBOLOGY, FUELS AND COMBUSTION

PROJECT TITLE	SUSTAINABLE DEPLOYMENT OF BIOMASS CATALYTIC GASIFICATION TECHNOLOGY TO INCREASE THE UTILIZATION OF RENEWABLE ENERGY IN THE SERBIAN INDUSTRY
ACRONYM/ PROJECT ID	STABILISE
FUNDING PROGRAM	Science Fund of the Republic of Serbia - Green Program of Cooperation between Science and Industry
PROJECT COORDINATOR	Science Fund of the Republic of Serbia - Green Program of Cooperation between Science and Industry
PROJECT COORDINATOR AT UB-FME	Assoc. Prof. Dr. Vladimir Jovanović
PARTICIPANTS FROM UB-FME	Assoc. Prof. Dr. Vladimir Jovanović, Prof. Dr. Mirko Komatina, Prof. Dr. Aleksandar Jovović, Prof. Dr. Dejan Radić
PROJECT DESCRIPTION	STABILISE project offers novelty in the transition from laboratory to industrial scale in biomass application, which includes the definition of fundamental and practical toolkits for their implementation in the biomass gasification process as a challenge in the sustainable development of Serbian industry. The overall objective behind STABILISE would be to identify and propose optimal technology for biomass gasification. Four feedstock groups dominantly available in Serbia (wood biomass, agricultural biomass, biodegradable parts of MSW including sludge from wastewater treatment and energy crops) will be evaluated. All toolkits assess feedstock suitability to produce hydrogen-rich syngas in the fluidized-bed gasifier. Gasification is struggling with challenges compared to the more maturely developed combustion technology, such as tar or other trace impurities, which cause operational problems for downstream gas utilization. STABILISE project encompasses characterization methods of raw, catalyst-supported feedstocks, char for its consideration as a catalyst for tar removal, methods of mathematical modelling for gasification process optimization, syngas chemical content detection, and methods for produced syngas quality improvement. STABILISE collects essential data on the suitability of selected biomass for hydrogen-rich syngas production, using carefully selected low-cost catalysts for the process upgrading. Results collected and interpreted through toolkits can be used to create biomass gasification workbooks for the construction of the plants at a local level, where biomass is locally available and distributed, with cheap transportation costs. STABILISE is an industry-preferred sustainable gasification technology upgrade with a remarkable local socio-economic impact. Its implementation should reduce the cost of operation and pollution control in the biomass-to-energy industry.

KEY WORDS
biomass gasification, sustainable development, renewable energy

CONSORTIUM
3

COUNTRIES
1

DURATION
(start – end)
1.5.2023 – 30.4.2025

TOTAL BUDGET - TOTAL (EUR)
184.000

BUDGET – UB -FME (EUR)
34.481,60

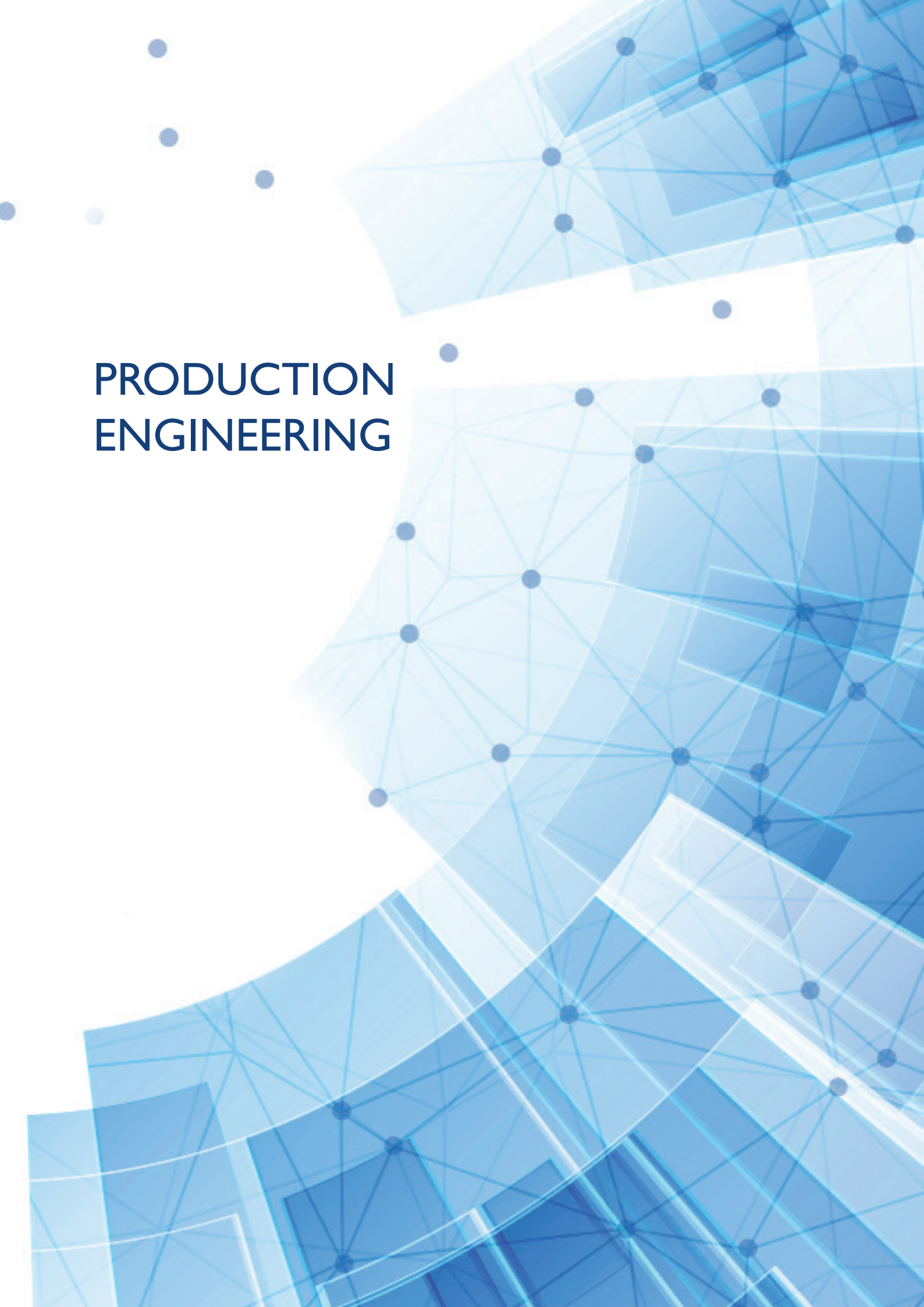
PROJECT WEBSITE
https://stabilise.rs/

CONTACT AT UB-FME
vjovanovic@mas.bg.ac.rs

DEPARTMENT

INTERNATIONAL PROJECTS

PRODUCTION ENGINEERING



PROJECT TITLE
Cybersecurity of Motion Control Systems in Industry 4.0

ACRONYM/ PROJECT ID
MCSecurity

FUNDING PROGRAM
Science Fund of the Republic of Serbia - Program of cooperation with the Serbian Scientific Diaspora - Joint Research Projects (DIASPORA 2023)

PROJECT COORDINATOR
Prof. Dr. Zivana Jakovljevic, University of Belgrade, Faculty of Mechanical Engineering, Serbia

PROJECT COORDINATOR AT UB-FME
Prof. Dr. Zivana Jakovljevic

PARTICIPANTS FROM UB-FME
Prof. Dr. Zivana Jakovljevic, Prof. Dr. Zoran Miljkovic, Assoc. Prof. Dr. Milica Petrovic, Ass. Prof. Dr. Dusan Nedeljkovic, Teach. asst. Aleksandar Jokic, Jun. Res. Asst. Katarina Brenjo

PROJECT DESCRIPTION

With the implementation of Industrial Internet of Things (IIoT) based on Cyber-Physical Systems (CPS) and interconnection of all levels of automation pyramid, Industrial Control Systems (ICS) within Industry 4.0 are no longer isolated islands, but a part of connected world. They are realized through ubiquitous communication of smart devices, and as such are vulnerable to cyber-attacks by different adversaries. Motion Control (MC) systems as significant element of ICS applied in different manufacturing assets such as Numerically Controlled (NC) machines or mobile robots represent an interesting target for cyber-attacks.

Nevertheless, although they are already widely implemented using IIoT principles, cybersecurity of MC systems was not sufficiently explored. The main goal of MCSecurity project is to create Artificial Intelligence (AI) based solutions for cybersecure MC within Industry 4.0 using Machine Learning (ML) based approaches, such as Deep Learning (Convolutional Neural Networks, Recurrent Neural Networks, etc.), Support Vector Machines (SVM), and biologically inspired optimization algorithms. In the focus of the research will be generation of new ML-based cybersecurity mechanisms (including intrusion detection systems) for NC machines with distributed MC and visually controlled intelligent mobile robots, as well as the integrated process planning and scheduling/ rescheduling of cyber-physical manufacturing systems in case that cyber-attack occurs. MCSecurity will have a direct impact on scientific community, industry, education, and society as a whole through the development of innovative solutions, generation of experts in the area of ICS cybersecurity and raising the awareness of industry, other stakeholders and general public about cybersecurity issues in ICS.

This impact will be achieved through the development of new algorithms, technical solutions, systems, methodologies, and datasets that will be intensively disseminated and communicated to targeted audiences. MCSecurity has an ambitious, but well-balanced work plan structured into five work packages, with clearly set milestones and deliverables to ensure the achievement of the objectives and delivery of the expected results. Consortium consists of researchers from FMEUB and Duke that have highly complementary expertise in CPS cybersecurity and a track record of successful cooperation in this field. They have clear roles within work plan tasks that will be carried out in close collaboration.

KEY WORDS	Cybersecurity; Motion Control; Robotics; Industrial Control Systems; Cyber-Physical Systems; Machine Tools; Industry 4.0; Artificial Intelligence; Deep Learning; Manufacturing Optimization;
CONSORTIUM	2 University of Belgrade, Faculty of Mechanical Engineering; Department of Electrical and Computer Engineering; Duke University
COUNTRIES	2 – USA, Republic of Serbia
DURATION (start – end)	01.01.2025. -31.12.2025.
TOTAL BUDGET - TOTAL (EUR)	199.925,98
BUDGET – UB -FME (EUR)	199.925,98
PROJECT WEBSITE	
CONTACT AT UB-FME	zjakovljevic@mas.bg.ac.rs

PROJECT TITLE	ATLAS ROMAN POTS
ACRONYM/ PROJECT ID	ARP
FUNDING PROGRAM	ATLAS Collaboration at CERN
PROJECT COORDINATOR	Marko Milovanović, Justus-Liebig-Universität Gießen — JLU, II. Physikalisches Institut Heinrich-Buff-Ring 16. D 35392 Gießen, Germany
PROJECT COORDINATOR AT UB-FME	Assoc. Prof. Dr. Goran Mladenović
PARTICIPANTS FROM UB-FME	Assoc. Prof. Dr. Goran Mladenović, Ass. Prof. Dr. Dejan Jevtić
PROJECT DESCRIPTION	The ATLAS Roman Pots (ARP) are a part of the FWD subsystem of the ATLAS Experiment at the LHC. ATLAS has two sets of such detectors: AFP and ALFA. Their goal is to extend the physics reach of the main detector by measurements of intact protons scattered at very small angles. Both these systems use the Roman pot technique to perform the measurements inside the LHC beam pipe and are installed between other elements of the LHC accelerator.
KEY WORDS	ALFA, AFP, SiT, ToF, FwD
CONSORTIUM	~50 active members from 18 participating institutes around the world
COUNTRIES	11 (CA, ES, UK, CO, CH/CERN, DE, PL, CZ, P, US, RS)
DURATION (start – end)	2006 – 2026
TOTAL BUDGET - TOTAL (EUR)	~300.000 chf/year (+institute own funding)
BUDGET – UB -FME (EUR)	/
PROJECT WEBSITE	https://twiki.cern.ch/twiki/bin/viewauth/Atlas/AFP
CONTACT AT UB-FME	gmladenovic@mas.bg.ac.rs

PROJECT TITLE	SUSTAINABLE USE OF SALT-AFFECTED LANDS (CA22144)
ACRONYM/ PROJECT ID	SUSTAIN
FUNDING PROGRAM	COST (European Cooperation in Science and Technology)
PROJECT COORDINATOR	Sawako Nakamae, Vrije Universiteit Amsterdam (VU Amsterdam), Netherlands
PROJECT COORDINATOR AT UB-FME	Assoc. Prof. Dr Goran Mladenović
PARTICIPANTS FROM UB-FME	Assoc. Prof. Dr. Goran Mladenović, Prof. Dr. Ivan Zlatanović, Assoc. Prof. Dr. Vojislav Simonović
PROJECT DESCRIPTION	Salinisation, the accumulation of water-soluble salts in the soil, is one of the major causes of soil degradation affecting 833 million hectares of land and 1.5 billion inhabitants worldwide. However, these lands can be used by applying saline agriculture, involving soil, water and salt-tolerant crop management methods. Cultivation of salt-affected lands aids in addressing food and water security in the times of progressing climate change and population growth. As a result, there is an urgent need to create a network of research and practice and foster the sustainable use of salt-affected lands. This COST Action aims to build a global transdisciplinary network of scientific experts and engaged stakeholders in the field of salinity research in the context of food security, sustainability and the intensifying climate crisis. Our activities will focus on: (i) understanding responses to heterogeneous soil salinity and other combined stresses in the soil-rhizosphere-plant continuum; (ii) building a knowledge-base to improve water and soil management, and crop production on salt-affected lands; (iii) showcasing the total value of salt-affected lands and saline landscapes; (iv) connecting various stakeholders involved in saline agriculture; and (v) developing targeted policy frameworks for the proper salinisation management, bringing saline agriculture as a complementary component in the European food security agenda for coastal and inland salt-affected lands. Mutual knowledge exchange and sharing best practices will contribute to more sustainable use of salt-affected lands and enhance the resilience of the landscape as a whole.
KEY WORDS	Salinisation, Saline Agriculture, Salt-Affected Soils, Sustainable Development2
CONSORTIUM	
COUNTRIES	45
DURATION (start – end)	03/10/2023 - 02/10/2027
TOTAL BUDGET - TOTAL (EUR)	185.000 eur/year
BUDGET – UB -FME (EUR)	199,925.98
PROJECT WEBSITE	https://sustaincostaction.eu/
CONTACT AT UB-FME	gmladenovic@mas.bg.ac.rs

PROJECT TITLE
EUROPEAN MATERIALS ACCELERATION CENTER FOR ENERGY (CA22123)

ACRONYM/ PROJECT ID
EU-MACE

FUNDING PROGRAM
COST (European Cooperation in Science and Technology)

PROJECT COORDINATOR
Sawako Nakamae, CEA (French Alternative Energies and Atomic Energy Commission), France

PROJECT COORDINATOR AT UB-FME
Assoc. Prof. Dr. Goran Mladenović

PARTICIPANTS FROM UB-FME
Assoc. Prof. Dr. Goran Mladenović, Prof. Dr. Ivan Zlatanović

PROJECT DESCRIPTION

Materials have played a decisive role in nearly all rupture technologies in the industrial history of our society. Faced with the current climate, geopolitical and humanitarian crisis, many international and regional entities (political, industrial and scientific alike) recognize the importance of a strong materials innovation ecosystem for driving the clean energy transition. In response, self-driving laboratories (SDL) (a.k.a. MAPs – materials acceleration platforms) are created at institutional, regional and international levels. SDLs integrate combinatorial synthesis, high-throughput characterization, automated analysis and machine learning for fast-track discovery and optimization of advanced materials. While these platforms are proving their effectiveness in producing advanced materials with targeted functionalities and physical properties, a large margin of improvement still exists. Streamlining materials integration into components and to safe and sustainable products is one example challenge in order to enable rupture technology.

Another challenge is that of geographical concentration of MAPs that practically excludes a substantial fraction of research labs and tech-companies in Europe from contributing and benefiting from such platforms. Finally, next generation material science researchers need to develop new skills to be able to integrate such systemic and automated approach into their future R&D framework. To this end, EU-MACE will become an ecosystem for accelerated materials development at the user end, gathering researchers and stakeholders with state-of-the-art digital and material competences combined with the market/social pull. Our inclusive & systemic approach will lay the foundation for a future centre of excellence for advanced functional materials to assist transition toward a united and stronger EU.

INTERNATIONAL PROJECTS

KEY WORDS	Advanced Energy Materials, Materials Acceleration Platform, Safe And Sustainable By Design, Clean Energy Transition
CONSORTIUM	
COUNTRIES	37
DURATION (start – end)	03/10/2023 - 02/10/2027
TOTAL BUDGET - TOTAL (EUR)	125.000 EUR/year
BUDGET – UB -FME (EUR)	
PROJECT WEBSITE	https://eu-mace.eu/
CONTACT AT UB-FME	gmladenovic@mas.bg.ac.rs

PROJECT TITLE	EXTENDED REALITY TOOLS TO SUPPORT LEARNING ACTIVITIES IN ENGINEERING
ACRONYM/ PROJECT ID	XREN
FUNDING PROGRAM	Erasmus+
PROJECT COORDINATOR	Kashif Mahmood, TALLINNA TEHNIKAULIKOOL, Estonia
PROJECT COORDINATOR AT UB-FME	Prof. Dr. Živana Jakovljević, Prof. Dr. Petar Petrović
PARTICIPANTS FROM UB-FME	Assoc. Vladimir Miković, Teach. Asst. Lazar Matijašević
PROJECT DESCRIPTION	The project goal is to deliver developed XR learning workflows in a real higher education environment of industrial and mechanical engineering. Innovative XR learning co-design labs are developed, where engineering students will use and test the XR learning workflows. Special XR learning workshops are organised involving the students in a full immersion learning experience taking advantage of XR technologies. Project implementation covers sets of study materials that include the definition of learning objectives, use cases, tasks, user experience modalities, and employed technologies. The materials will be coupled with relevant data and prototype digital tools that support the execution of the workflow in-classroom, interconnecting university labs in the consortium and beyond, enabling virtually students to join or access. We expect to introduce 10 workflows that take advantage of XR technologies to enhance-learning in industrial engineering education with a reference document that includes the definition of learning objectives, use case(s), tasks, user experience modalities, and employed technologies implemented into all participating HEs during the project run in 3 curricula and in total 6 courses on Bachelor's and Master's degree in classical and blended study model.
KEY WORDS	XR technologies, learning workflows, co-design labs, engineering, immersive workshops
CONSORTIUM	4: TALLINNA TEHNIKAULIKOOL, Estonia; CONSIGLIO NAZIONALE DELLE RICERCHE, Italy; POLITECNICO DI MILANO, Italy; University of Belgrade, Serbia
COUNTRIES	8 - Republic of Italy, Republic of Slovenia, Republic of Bulgaria, Hungary, Republic of Croatia, Republic of Serbia, Republic of Macedonia
DURATION (start – end)	01.09.2023 - 31.08.2026
TOTAL BUDGET - TOTAL (EUR)	400.000,00
BUDGET – UB -FME (EUR)	75.834,00
PROJECT WEBSITE	https://www.xr-en.eu/
CONTACT AT UB-FME	zjakovljevic@mas.bg.ac.rs lmatijasevic@mas.bg.ac.rs

PROJECT TITLE	ADVANCED VIRTUAL AND AUGMENTED REALITY TOOLKIT FOR LEARNING
ACRONYM/ PROJECT ID	AVATAR
FUNDING PROGRAM	Erasmus+
PROJECT COORDINATOR	Frédéric Noël, INSTITUT POLYTECHNIQUE DE GRENOBLE, France
PROJECT COORDINATOR AT UB-FME	Prof. Dr. Petar Petrović
PARTICIPANTS FROM UB-FME	Assoc. Prof. Dr. Božica Bojović, Assoc. Nikola Lukić, Assoc. Vladimir Miković, Teach. Asst. Lazar Matijašević
PROJECT DESCRIPTION	The AVATAR project focuses on advancing the integration of Extended Reality (XR) technologies into engineering education, particularly in the context of design and manufacturing. With the increasing maturity of XR since 2010, these technologies have seen widespread adoption in consumer applications such as video games. However, their application in professional settings, particularly manufacturing production systems under Industry 4.0, remains underutilized. This is primarily due to a shortage of skilled professionals capable of specifying XR use cases, developing appropriate tools, and deploying the technologies effectively. The AVATAR initiative seeks to address this gap by developing a training method tailored for engineering courses. This effort aims to equip students with the necessary skills for XR technologies and contribute to their deployment in industrial contexts. The project is a partnership between academic institutions and research centers from three European countries, inciting collaboration and knowledge sharing among students and educators. The project has two key objectives. First, it aims to design a new curriculum focusing on XR technologies for design and manufacturing engineers. This curriculum emphasizes common workflows rather than standardizing technological devices and software. The goal is to establish abstract, universal practices for XR implementation. Second, AVATAR aims to create a network of European students capable of applying and disseminating their XR experience. Each year, around 15 students participate in a specialized training semester, culminating in a joint learning lab where students collaborate in international teams. The implementation of AVATAR involved several strategic steps. Student selection was organized, and a comprehensive agenda was developed for lessons, exercises, lab work, and evaluations. High-level technological devices were adapted for educational purposes by engineers from each partner institution. Teachers collaborated closely to design detailed workflows guiding students from the specifications of virtual environments to their development, testing, and evaluation. These workflows were documented in an open-access book that includes practical examples derived from student projects. AVATAR has yielded several tangible results. These include the creation of a European student network, with 62 students participating over three years, and the development of detailed guidelines for building virtual environments. The project also produced comprehensive training materials, such as lesson slides and lab exercises, which were refined throughout the initiative. Additionally, the organization of annual joint learning lab weeks allowed students to apply their knowledge in collaborative, international settings.
KEY WORDS	Education, Engineering, Extended Reality, Learning, Manufacturing
CONSORTIUM	4: INSTITUT POLYTECHNIQUE DE GRENOBLE, France; CONSIGLIO NAZIONALE DELLE RICERCHE, Italy; POLITECNICO DI MILANO, Italy; University of Belgrade, Serbia
COUNTRIES	3 - France, Italy, Serbia
DURATION (start – end)	01.09.2020 - 31.08.2023
TOTAL BUDGET - TOTAL (EUR)	357.023,00
BUDGET – UB -FME (EUR)	53.239,00
PROJECT WEBSITE	https://avatar.gricad-pages.univ-grenoble-alpes.fr/avatar-site/
CONTACT AT UB-FME	pbpetrovic@mas.bg.ac.rs; lmatijasevic@mas.bg.ac.rs

MATERIAL HANDLING, CONSTRUCTION AND LOGISTICS

PROJECT TITLE	IMPLEMENTATION OF DUAL EDUCATION IN HIGHER EDUCATION OF SERBIA
ACRONYM/ PROJECT ID	DualEdu
FUNDING PROGRAM	Erasmus+, EAC-A03-2016, Project 586029
PROJECT COORDINATOR	Prof. Dr Nenad Zrnić, University of Belgrade, Serbia
PROJECT COORDINATOR AT UB-FME	Prof. Dr. Nenad Zrnić
PARTICIPANTS FROM UB-FME	Prof. Dr. Nenad Zrnić, Prof. Emeritus Radivoje Mitrović, Assoc. Prof. Dr. Žarko Mišković, Prof. Dr. Živana Jakovljević, Prof. Dr. Vlada Gašić
PROJECT DESCRIPTION	Dual Education is a unique education model, which combines classroom-based education with work experiences. Aiming to improve the relevance and effectiveness of education, meaning that education has to provide graduates with competences required by employers and job market, Serbian Government is giving high priority to implementation of Dual Education. This project has to specify a generic, flexible Dual Higher Education (DHE) model to be implemented in Serbia, after testing different derived specific models during their pilot implementations. Some sectors, such as IT, need to employ students due to the lack of IT graduates. Other sectors are expecting graduates to have competences more in line with their needs. After analysis best practices in Europe and worldwide, and after interviewing interested companies in Serbia what DHE models are the most suitable to them, the project will specify a flexible and generic DHE model from which different specific DHE models could be derived and implemented according to companies requirements. The project plans to propose amendments to the corresponding legislation (Law on Dual Education, Law on Higher Education, Labor Law) and to accreditation standards. The selected DHE models will be tested during their pilot implementations by all Serbian HEIs participating in the project and with companies - its associate members, during the second half of this 3-years project. At the end, a survey and interviews of companies with and without DHE students will identify benefits of introducing DHE in Serbia. Proposals of amendments to DE and HE legislation and accreditation standards, based on the developed and tested DHE model, as well as guidelines for DHE implementation offered to HEIs and companies, are expected project outcomes. They will have a significant impact to the relevance and effectiveness of higher education in Serbia, as more graduates will have competences needed by employers.
KEY WORDS	
CONSORTIUM	14
COUNTRIES	6
DURATION (start – end)	2018-2021
TOTAL BUDGET - TOTAL (EUR)	992.310,00
BUDGET – UB -FME (EUR)	162.387,00
PROJECT WEBSITE	https://dualedu.ef.uns.ac.rs/
CONTACT AT UB-FME	nzrnic@mas.bg.ac.rs

AGRICULTURAL ENGINEERING

PROJECT TITLE	HARNESSING THE POTENTIAL OF UNDERUTILIZED CROPS TO PROMOTE SUSTAINABLE FOOD PRODUCTION
ACRONYM/ PROJECT ID	DIVERSICROP (CA22146)
FUNDING PROGRAM	COST
PROJECT COORDINATOR	Dr. Sonia Negrao, Action Chair, University College Dublin, Science West- UCD- Belfield, Ireland, Dublin
PROJECT COORDINATOR AT UB-FME	Prof. Dr. Vojislav Simonović
PARTICIPANTS FROM UB-FME	Prof. Dr. Vojislav Simonović
PROJECT DESCRIPTION	With population growing rapidly and within the context of agro-climatic changes, there is an increased demand to sustainably produce nutritious food. In Europe, many nutrient-dense foods are not widely grown and consumed, despite their suitability to European climates and environments, and viability for sustainable production with lower inputs. Underutilised crops that are stress resilient such as rye and legumes, have the potential to supply key nutrients and improve diets and risk of diet-related diseases. Such crops have a long history of cultivation across the continent and are part of the national historic food identity of different European countries yet are underutilised due to several complex reasons. DIVERSICROP addresses these challenges using an innovative, cross-sectoral and multidisciplinary approach by analysing the deep history of underutilised crops in Europe, understanding the genetic diversity and adaptation to climate change of crop germplasm, analysing current regional trends in the consumption of food products and by involving national and EU policymakers and key stakeholders to revive diverse crop production and maximise the impact of Europe's agricultural sustainability. DIVERSICROP aims to harmonise fragmented data and develop strategies for the sustainable cultivation of target crops, striking a balance between agricultural sustainability and human nutritional value. DIVERSICROP brings together a skilled and interdisciplinary network to identify climate-resilient crop lines, and potential nutritional and health benefits of their consumption to rethink our food systems. DIVERSICROP will strengthen the Farm to Fork and the Biodiversity strategies under the European Green Deal to contribute to achieving the UN Sustainable Development Goals.
KEY WORDS	Crop Sciences, Nutrition, Ancient History, Policy Analysis, Genetic Resources
CONSORTIUM	
COUNTRIES	34
DURATION (start – end)	17/10/2023 - 16/10/2027
TOTAL BUDGET - TOTAL (EUR)	
BUDGET – UB -FME (EUR)	
PROJECT WEBSITE	https://dualedu.ef.uns.ac.rs/
CONTACT AT UB-FME	Zoran Mijić, Country representative for Serbia, University of Belgrade, Institute of Physics

INDUSTRIAL ENGINEERING

PROJECT TITLE	HOISTING AND MINING MACHINERY CONTEXT SPECIFIC ADAPTIVE RISK PREVENTION EXPERT SYSTEM
ACRONYM/ PROJECT ID	E! 13300 HAMRISK
FUNDING PROGRAM	Eureka
PROJECT COORDINATOR	Prof. Dr.Vesna Spasojević Brkić, University of Belgrade, Faculty of Mechanical Engineering (UB-FME), Serbia
PROJECT COORDINATOR AT UB-FME	Prof. Dr Vesna Spasojević Brkić, FME UB, Srbija
PARTICIPANTS FROM UB-FME	Prof. Dr. Vesna Spasojević Brkić, Prof. Dr. Nikola Dondur, Prof. Dr. Zorica Veljković, Res. Assoc. Goran Đurić, Prof. Dr. Slobodan Radojević, Prof. Dr. Vladimir Popović, Prof. Dr. Mirjana Misita, Teach. Asst. Sonja Josipović

PROJECT DESCRIPTION

The subject of the project is the development of an expert system model to support decision-making for operators and maintenance managers in all sectors where transport and mining machines operate under unlimited geographical influence, as a superior electronic consulting service.

(b) The goal of the project is a scientifically grounded, economically justified, and socially necessary innovation, which involves the development of a decision-making model in the field of adaptive and contextual risk management for the operation and maintenance of transport and mining machines.This will enable the optimal selection of maintenance strategies, thereby enhancing workplace safety and health, reducing direct and indirect incident costs, improving planning, and increasing productivity.

(c) The main activities are related to the development and application of a new paradigm, concepts, and methodologies in the field of risk quantification, with an emphasis on an innovative contextual framework and an integrated hybrid approach to risk management for transport and mining machines.

KEY WORDS	expert system, transport and mining machines, risk management in operations and maintenance
CONSORTIUM	University of Belgrade, Faculty of Mechanical Engineering Innovation Center of the Faculty of Mechanical Engineering in Belgrade LLC ELECTRUM LLC
COUNTRIES	Serbia and Montenegro
DURATION (start – end)	1.10.2019. - 30.09.2022.
TOTAL BUDGET - TOTAL (EUR)	300.000
BUDGET – UB -FME (EUR)	150.000
PROJECT WEBSITE	
CONTACT AT UB-FME	vspasojevic@mas.bg.ac.rs

PROJECT TITLE	RESilience enhancement MODel
ACRONYM/ PROJECT ID	GOMES
FUNDING PROGRAM	SAF€RA
PROJECT COORDINATOR	Bruno Fabiano, Civil Chemical and, Environmental Engineering Department, Genoa University, Italy
PROJECT COORDINATOR AT UB-FME	Prof. Dr Vesna Spasojević Brkić, FME UB, Srbija
PARTICIPANTS FROM UB-FME	Prof. Dr Vesna Spasojević Brkić, Prof. Dr Zorica Veljković, Prof. Dr Mirjana Misita, Martina Perišić
PROJECT DESCRIPTION	The present research focuses on developing a conceptual model for the organizational resilience evaluation for different industrial sectors covering both the manufacturing and the process sides and relying on the actual experience gained during the first and second waves of the pandemic emergency. The applied inter-disciplinary research aims at developing an innovative approach for managing emerging pandemic risks, suitable to create new momentum and choices that make adaptation easier. In this regard, as an overall safety umbrella, the organizational resilience assessment and setting-up resilience indicators can support business continuity and help dealing with unexpected events, absorbing the disruptive potential. The basic methodology comprises the following steps: 1) identification of industrial sectors and activities liable to be impacted by pandemic and elaboration of Organizational Resilience check-list;2) design and elaboration of ad-hoc questionnaire; 3) selection of pilot case studies in each country and data analysis; 4) design of a Systemic Resilience Model (SRM) for identifying the significant precursors of an accident, or near miss under pandemic condition and it is developed with a data driven approach. The project covers the topic 1 of the SAF€RA call "Lessons learned from Covid-19 and capacity building for resilient response", as it focuses on the development of a methodology to dynamically produce safety by identifying and defending workers and population from threats. The expected result is an innovative method based on indicators that support in developing resilience and adaptive capacity at the organizational or societal level. The application of the proposed resilience assessment method can help develop resilience and adaptive capacity at organizational or societal level, including the risk management process.
KEY WORDS	Risk management, Resilience
CONSORTIUM	University of Genova, Civil, Chemical and Environmental, Engineering Department (UG) VSB-Technical University of Ostrava, Faculty of Safety, Engineering + VUBP (VSB), University of Belgrade Faculty of Mechanical Engineering (FME UB)University of Messina Department of Engineering (UM)
COUNTRIES	Italy, Czech Republic, Serbia
DURATION (start – end)	04.08.2021 - 04.08.2023.
TOTAL BUDGET - TOTAL (EUR)	170.000
BUDGET – UB -FME (EUR)	40.000
PROJECT WEBSITE	
CONTACT AT UB-FME	vspasojevic@mas.bg.ac.rs

PROJECT TITLE	SAFETY CLIMATE AND PERFORMANCE APPRAISAL OF HEAVY MACHINERY SUPPLY CHAIN MEMBERS IN AUSTRIA AND SERBIA AS A RESILIENCE ENHANCEMENT TOOL - ASSESSMENT OF THE SAFETY CLIMATE AND PERFORMANCE OF HEAVY MACHINERY SUPPLY CHAIN MEMBERS IN AUSTRIA AND SERBIA AS A TOOL FOR IMPROVING ORGANIZATIONAL RESILIENCE
ACRONYM/ PROJECT ID	SAFECORNER
FUNDING PROGRAM	Co-financing of scientific and technological cooperation between the Republic of Serbia and the Republic of Austria for the period 2024–2026, 337-00-216/2023-05/244
PROJECT COORDINATOR	Prof. Dr. Vesna Spasojević Brkić, University of Belgrade, Faculty of Mechanical Engineering (UB-FME),
PROJECT COORDINATOR AT UB-FME	Prof. Dr. Vesna Spasojević Brkić
PARTICIPANTS FROM UB-FME	Prof. Dr. Vesna Spasojević Brkić, Prof. Dr. Ivan Mihajlović, Teach. Asst. Neda Papić, Teach. Asst. Martina Perišić, Teach. Asst. Nemanja Janev, Teach. Asst. Nikola Petrović

PROJECT DESCRIPTION

The SAFECORNER is proposing solutions that will solve issues recognized in previous research. i.e.:

1. To foster modern, sustainable and resilient industry sectors, that generate a high percent of GDP and stimulate economic growth, and to significantly influence further development of society and economy in Austria and Serbia.

2. To improve heavy machinery labor productivity numbers, close to similar industry sectors.

3. To improve heavy machinery operators' health – to reduce employees' illness and health issues as well as to reduce negative impacts on community health.

4. To analyze safety climate constructs and dimensions of industry sectors in focus, in order to be able to reduce negative environmental impacts, e.g. pollution, loss of biodiversity and unsustainable use of natural resources.

5. To focus primarily on current issues in Serbian and Austrian heavy machinery production and construction, mining and quarrying sites where heavy machinery operates – on national level and to compare different contextual factors of supply chain upstream members in Austria and downstream members in Serbia (GDPs, workforce positions/hierarchical levels etc.).

6. To focus on a green and sustainable transition to enable lower accident and injury rates and better monitoring, reporting and prevention of air, water and soil pollution.

7. To offer high commercialization potential in both Serbian and Austrian markets, enabled by this bilateral cooperation.

8. To include excellent and young scientists and a significant proportion of women, which should contribute to the development of their research activities and expand their experiences with international research stakeholders and policy makers.

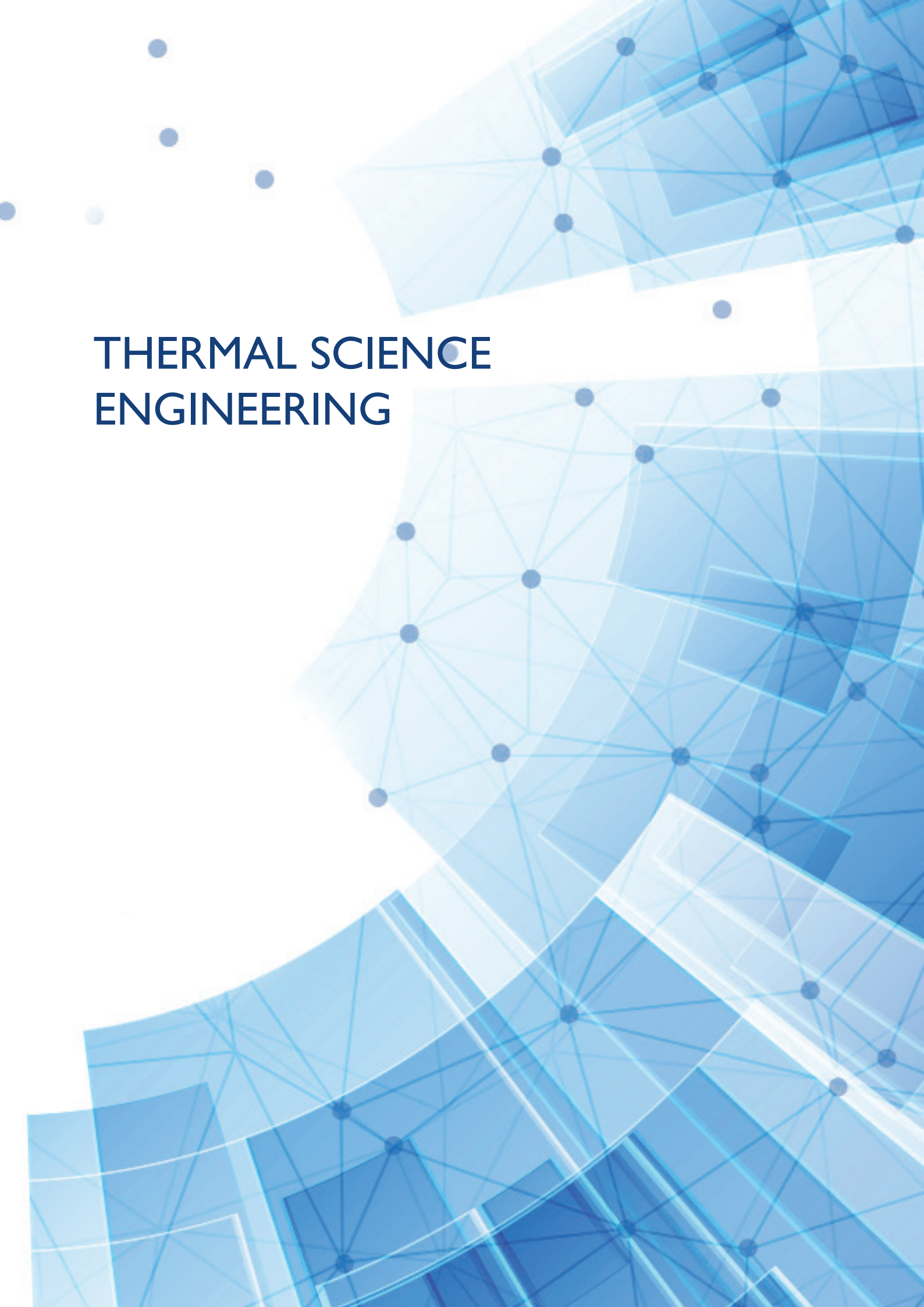
KEY WORDS	Safety Climate, Performance Appraisal, Heavy Machinery, Supply Chain
CONSORTIUM	Graz University of Technology (TU Graz),University of Belgrade, Faculty of Mechanical Engineering (UB-FME),
COUNTRIES	Austria, Serbia
DURATION (start – end)	17.06.2024.-17.06.2026.
TOTAL BUDGET - TOTAL (EUR)	14.000
BUDGET – UB -FME (EUR)	4.000
PROJECT WEBSITE	
CONTACT AT UB-FME	spasojevic@mas.bg.ac.rs

MECHANICS

PROJECT TITLE	STRUCTURAL OPTIMIZATION OF ADDITIVELY MANUFACTURED CELLULAR TITANIUM IMPLANT USING ARTIFICIAL INTELLIGENCE
ACRONYM/ PROJECT ID	/
FUNDING PROGRAM	Governemant of the Republic of Sebia, Government of the North Macedonia
PROJECT COORDINATOR	Prof. Dr. Nataša Trišović, University of Belgrade, Faculty of Mechanical Engineering
PROJECT COORDINATOR AT UB-FME	Prof. Dr. Nataša Trišović
PARTICIPANTS FROM UB-FME	Assis. Prof. Dr. Ana Petrović
PROJECT DESCRIPTION	The development of cellular structures has been inspired by natural designs like bone and wood due to their excellent properties. While metallic cellular structures have been produced for years, additive technology has opened new possibilities. Patient-specific titanium implants made via 3D printing with strategically open cellular structures can address issues like better bone attachment and strength compatibility. However, challenges remain, including insufficient knowledge of mechanical properties and difficulties in finite element modeling due to complex geometries.
KEY WORDS	Cellular structures, Structural optimization, Artificial intelligence
CONSORTIUM	2 – North Macedonia and Serbia
COUNTRIES	2 - Republic of Montenegro, Republic of Serbia
DURATION (start – end)	Start date - 01/01/2025 End date - 31/12/2026
TOTAL BUDGET - TOTAL (EUR)	An estimated € 4000 is made available for the Serbian Party, and 3.000.000,00 HUF for the Hungarian Party
BUDGET – UB -FME (EUR)	
PROJECT WEBSITE	
CONTACT AT UB-FME	ntrisovic@mas.bg.ac.rs

PROJECT TITLE	OPTIMISING DESIGN FOR INSPECTION (CA18203)
ACRONYM/ PROJECT ID	ODIN
FUNDING PROGRAM	COST
PROJECT COORDINATOR	Prof. Rhys Pullin, Action Chair, Cardiff University, Park place, United Kingdom, CF10 3AT, Cardiff
PROJECT COORDINATOR AT UB-FME	Prof. Dr. Nataša Trišović, University of Belgrade, Faculty of Mechanical Engineering
PARTICIPANTS FROM UB-FME	Assis. Prof. Dr. Ana Petrović, Teach. Asst. Mitra Vesović
PROJECT DESCRIPTION	Ultrasound based NDE techniques, energy harvesting and wireless sensor networks are being increasingly demonstrated to be effective in monitoring damage in aerospace components at a laboratory setting (TRL 3). These components include critical elements such as airframe, engines, landing gears and control surfaces. However there is an urgent need to integrate these approaches and techniques at the inception of an aircraft. This COST Action will bring together the top European experts across these areas to support the development of an integrated framework for optimised self-sensing structures capable of diagnosis and prognosis, together with demonstrators and educational activities, including training programs, which will ultimately lead to cleaner and safer skies. This Action will maximise the full benefit of in service, continuous monitoring of critical aerospace structures by integrating ultrasonic wave based non-destructive evaluation (NDE), energy harvesting and wireless sensor technologies at the design conception phase. Optimisation (sensor/structure), computational modelling, advanced signal processing and advanced design approaches will be integrated to produce a novel framework, design tools and guidelines for the delivery of the first generation of self-sensing aircraft capable of delivering accurate structural prognosis. This will improve maintenance strategies, increase asset availability, bridge the gap between research and industry, enable increased the use of advanced materials, reduce operating costs and ultimately deliver safer and greener air transport solutions.
KEY WORDS	Action keywords Design - Structures - Inspection - Optimisation - Aerospace
CONSORTIUM	7
COUNTRIES	27
DURATION (start – end)	02.10.2019 - 01.04.2024.
TOTAL BUDGET - TOTAL (EUR)	An estimated €125.000 is made available for a COST Action in its first year and an average of €1150.000 per year for the other 3 years.
BUDGET – UB -FME (EUR)	
PROJECT WEBSITE	https://www.cost.eu/actions/CA18203/
CONTACT AT UB-FME	ntrisovic@mas.bg.ac.rs

THERMAL SCIENCE ENGINEERING



PROJECT TITLE	NETWORK FOR INDOOR AIR CLEANING (CA23139)
ACRONYM/ PROJECT ID	Net4CleanAir
FUNDING PROGRAM	COST – European Commission
PROJECT COORDINATOR	Dr .Sofia Sousa, UNIVERSIDADE DO PORTO, Porto, Portugal
PROJECT COORDINATOR AT UB-FME	Teach.Asst.Anton Ker□ov
PARTICIPANTS FROM UB-FME	Assis. Anton Kerčov

PROJECT DESCRIPTION

Most people breathe more polluted air indoors than outdoors, impairing human health, comfort and productivity. The best approach for providing a healthy indoor air is source identification and elimination with ventilation using clean outdoor air. However, it is not possible to eliminate all indoor air pollution sources in all indoor environments, and ventilation per se cannot be used if the outdoor air is polluted, and can have a negative impact on the energy performance of the building. Thus, air cleaning technologies are seen as promising effective methods to provide clean indoor air and many have been emerging in the market. However, given the sparse public and market information, the technologies' limitations, the lack of standardisation and citizens' understanding, there is a need to consolidate accessible information on existing technologies for indoor air cleaning and to progress beyond the state-of-the-art involving the various stakeholders.

Thus, the main aim of Net4CleanAir is to create an international and interdisciplinary network of diverse stakeholders with a shared vision of promoting clean air for healthy and energy-efficient indoor environments throughout Europe. Net4CleanAir will join world-leading experts covering the main disciplines in air cleaning research and innovation which will be a unique opportunity to pave the way for progress beyond the state of the art, namely for future development of standards and regulations, and decision-making systems for indoor air cleaning technologies. Net4CleanAir will promote high-level and multidisciplinary training, along with scientific and societal dissemination to engage citizens at the centre of indoor air cleaning.

KEY WORDS	Indoor Air Pollution - Air Cleaning Technologies - Airborne contaminants - Healthy Buildings1
CONSORTIUM	37
COUNTRIES	26
DURATION (start – end)	18.10.2024 – 17.10.2028
TOTAL BUDGET - TOTAL (EUR)	The budget is not allocated yet (An estimated €125.000 is made available for a COST Action in its first year and an average of €150.000 per year for the other 3 years.)
BUDGET – UB -FME (EUR)	0 (project do not cover researchers' honoraria nor research, only reimbursement of travel costs)
PROJECT WEBSITE	Action CA23139 - COST
CONTACT AT UB-FME	tbajc@mas.bg.ac.rs,

PROJECT TITLE	MODENERLANDS - MODULAR ENERGY ISLANDS FOR SUSTAINABILITY AND RESILIENCE (CA20109)
ACRONYM/ PROJECT ID	MODENERLANDS
FUNDING PROGRAM	EU Strategy for the Danube Region, Priority Area 1a – Mobility and Multimodality
PROJECT COORDINATOR	COST – European Commission
PROJECT COORDINATOR AT UB-FME	Prof. Carlos Rebelo, ACIV Associação para o Desenvolvimemto da Engenharia Civil, Coimbra, Portugal
PARTICIPANTS FROM UB-FME	Assoc. Prof. Dr. Tamara Bajc
PROJECT DESCRIPTION	The MODENERLANDS Action aims to merge and systematise the efforts of the European Research and Development (R&D) groups working on Sustainable Energy and the related technologies, in particular wind and wave energy sources, by proposing pathways for incorporation and by promoting the relevant synergies in Research, Education and Training in order to enhance Sustainability in the built environment. MODENERLANDS revisits safe, smart, modular, cost-effective and socially valuable high performance sustainable Energy Islands for consideration in the plans, design and development of the future sustainable energy infrastructure. Looking forward to future development, MODENERLANDS will work with Modularised Construction of Offshore Floating Platforms aiming at easily extending their size and capacity according to future energy needs. The concept of Modular Energy Island will act as a platform to maximise collection and conversion of the renewable energy sources and efficiently transfer them to the network, exploring cutting-edge Green Hydrogen related technologies for efficient energy storage and transportation. MODENERLANDS will promote synergies that will offer breakthrough scientific developments leading to new concepts and R&D outcome and thereby contributing to the strengthening of the European research and innovation capacities on Sustainable Energy Applications along the European Green Deal lines. The proposed European Network will develop a European-based scientific and technological network with strong scientific multi-/inter-disciplinary features that will work on the exploitation of the research outcomes related to Modular Sustainable Energy Islands by integrating all related stakeholders, thereby intensifying the links among scientific and research groups and Sustainable Energy industry.
KEY WORDS	Renewable energy - Floating offshore platforms - Modular Construction - Green hydrogen - Energy storage
CONSORTIUM	34
COUNTRIES	32
DURATION (start – end)	11.10.2021 – 10.10.2025
TOTAL BUDGET - TOTAL (EUR)	499.704,5 (from 2022 to 2024, for next 2025, the budget is not allocated yet, the budget for the first year is not included in this)
BUDGET – UB -FME (EUR)	0 (project do not cover researchers' honoraria nor research, only reimbursement of travel costs)
PROJECT WEBSITE	https://www.cost.eu/actions/CA20109/#tabs+Name:Management%20Committee https://modenerlands.eu/
CONTACT AT UB-FME	tbajc@mas.bg.ac.rs

THERMAL POWER ENGINEERING

PROJECT TITLE	MULTIPHASE FLOWS IN AUTOMOTIVE REFRIGERATION SYSTEMS
ACRONYM/ PROJECT ID	MFARS
FUNDING PROGRAM	Serbian Science and Diaspora Collaboration Program: Knowledge Exchange Vouchers
PROJECT COORDINATOR	Prof. Dr. Vladimir Stevanovic, University of Belgrade, Faculty of Mechanical Engineering, Serbia
PROJECT COORDINATOR AT UB-FME	Prof. Dr. Vladimir Stevanovic
PARTICIPANTS FROM UB-FME	Prof. Dr. Vladimir Stevanovic, Prof. Dr. Sanja Milivojevic, Res. Assoc. Milan M. Petrovic
PROJECT DESCRIPTION	The aim of the project is a scientific collaboration between the University of Belgrade and the Pierburg GmbH, which is one of the leading European company for the development and manufacturing of the automotive equipment. The partner from the diaspora is Dr. Stojan Cucuz, who received his BSc from the University of Belgrade, Faculty of Mechanical Engineering and Ph.D. academic degree from the Technische Universität Braunschweig. Dr. Cucuz is currently the senior director of engineering at Pierburg GmbH and is a world-wide recognized leader in development of automotive thermal systems. The topic of the joint research will be refrigerant and oil multiphase flows as a support to the design of efficient and cost-effective automotive air-conditioning.
KEY WORDS	automotive air-conditioning, refrigerant, oil, multiphase flow
CONSORTIUM	2 – UB-FME and Pierburg GmbH
COUNTRIES	2 – Serbia and Germany
DURATION (start – end)	01.01.2021. – 31.10.2023.
TOTAL BUDGET - TOTAL (EUR)	5.242,00
BUDGET – UB -FME (EUR)	5.242,00
PROJECT WEBSITE	/
CONTACT AT UB-FME	vstevanovic@mas.bg.ac.rs,

PROJECT TITLE

FLEXIBLE FOSSIL POWER PLANTS FOR THE FUTURE ENERGY MARKET THROUGH NEW AND ADVANCED TURBINE TECHNOLOGIES

ACRONYM/ PROJECT ID

FLEXTURBINE

FUNDING PROGRAM

HORIZON 2020

PROJECT COORDINATOR

Jiří FIALA DOOSAN SKODA POWER SRO, Czech Republic

PROJECT COORDINATOR AT UB-FME

Prof. Dr. Milan Petrovic

PARTICIPANTS FROM UB-FME

Prof. Dr. Milan Petrovic, Assoc. Prof. Dr. Milan Banjac, Teach. Asst. Srdjan Milic, Teach. Asst. Djordje Petkovic, Dejan Djukanovic

PROJECT DESCRIPTION

The share of renewable energy is growing rapidly driven by the objective to reduce greenhouse gas emissions. The amount of electric power which can be supplied to the grid depends on the time of the day and weather conditions. A conventional fleet of thermal power plants is required to compensate for these fluctuations before large scale energy storage technologies will be mature and economically viable. All power market projections expect this to be the case for the next 50 years at least. For a strong expansion of renewables, this fleet has to operate flexibly at competitive cost. Current power plants cannot fill this role immediately without impeding their efficiency and engine lifetime through increased wear and damage induced by the higher number of (shorter) operating/loading cycles. New technologies need to be introduced to balance demand peaks with renewable output fluctuations at minimal fuel consumption and emissions without negative effects on cycling operation. The FLEXTURBINE partners have developed a medium to long term technology roadmap addressing future and existing power plants. The FLEXTURBINE project presented hereafter is the first step in such technology roadmap and consists of: (1) new solutions for extended operating ranges to predict and control flutter, (2) improved sealing and bearing designs to increase turbine lifetime and efficiency by reducing degradation/damages, and (3) an improved lifecycle management through better control and prediction of critical parts to improve competitive costs by more flexible service intervals and planned downtime, and by reducing unplanned outages. In all areas, individual technologies will be developed from TRL 3 to TRL 4-6. FLEXTURBINE brings together the main European turbine manufacturers, renowned research institutes and universities. It involves plant and transmission system operators to include user feedback and to prepare the take-up of the FLEXTURBINE technologies in power plants world-wide.

KEY WORDS	Fossil power plants, enabling flexible operation, turbine technologies, lifecycle management, aeroelastic response, turbine blades, flutter, sealing, bearing, component life time
CONSORTIUM	22
COUNTRIES	7
DURATION (start – end)	1 January 2016 - 31 March 2019
TOTAL BUDGET - TOTAL (EUR)	10.653.882,50 (EU contribution € 6.477.595,50)
BUDGET – UB -FME (EUR)	250.000
PROJECT WEBSITE	https://cordis.europa.eu/project/id/653941
CONTACT AT UB-FME	mpetrovic@mas.bg.ac.rs

PROCESS AND ENVIRONMENTAL PROTECTION ENGINEERING

PROJECT TITLE	RESEARCH OF NEW TECHNOLOGIES FOR CO^2 REDUCTION
ACRONYM/ PROJECT ID	
FUNDING PROGRAM	Ministry of Education, Science and Technological Development
PROJECT COORDINATOR	University of Belgrade, Faculty of Mechanical Engineering, Serbia
PROJECT COORDINATOR AT UB-FME	Prof. Dr. Aleksandar Jovovic
PARTICIPANTS FROM UB-FME	Prof. Dr. Dragoslava Stojiljković
PROJECT DESCRIPTION	Prof. Dr. Dragoslava Stojiljkovic, Dr. Marta Trninic, Research associate
	This Project is focused on the CO2 mitigation, using several different approaches: 1) CO2 removal from flue gases using new class of chemical sorbents and adsorptive materials, 2) CO2 removal from flue gases applying new procedure, using microalgae with high potential for CO2 absorption via cell morphology and molecular biology and optimization of its production, with emphasis on sustainability and greater utilization of unused biomass and CO2 emission reduction, 3) production of different chemicals and fuels from microalgae and different biomass types (pyrolysis, gasification and cocombustion of microalgae with different biomass, MSW and SRF), 4) biodiesel production.
KEY WORDS	New technologies CO^2 reduction, GHG
CONSORTIUM	2
COUNTRIES	2 – Public Republic of China, Serbia
DURATION (start – end)	2018-2020
TOTAL BUDGET - TOTAL (EUR)	n.a.
BUDGET – UB -FME (EUR)	6.000
PROJECT WEBSITE	/
CONTACT AT UB-FME	ajovovic@mas.bg.ac.rs

THERMOMECHANICS

PROJECT TITLE	ENHANCING THE ENERGY MANAGEMENT SYSTEM TO SCALE UP ENERGY EFFICIENCY INVESTMENTS IN PUBLIC BUILDINGS IN SERBIA
ACRONYM/ PROJECT ID	/
FUNDING PROGRAM	Global Environmental Facility – GEF United Nations Development - UNDP
PROJECT COORDINATOR	Jana Koperniech, United Nations Development Programme, Istanbul (Tatjana Strahinjic-Nikolić ,United Nations Development Programme, Belgrade)
PROJECT COORDINATOR AT UB-FME	Prof. Dr. Miloš Banjac
PARTICIPANTS FROM UB-FME	Assoc. Prof. Dr Nedžad Rudonja, Teach. Assst. Marija Vasilev, Junior Res. Asst. Branislav Petrović, Junior Res. Asst. Sandra Kovačević, Jasmina Pešić Jotić, International Relations Officer
PROJECT DESCRIPTION	Inefficient use of energy, originating predominantly from fossil fuels, represents a major development concern in Serbia, as well as a large source of GHG emissions. Energy sector GHG emissions account for 80% of the national GHG emissions and 40% of this comes from energy (mainly heat) consumption in buildings. The objective of this project is to reduce greenhouse gas emissions by improving the energy efficiency and promoting the use of renewable energy sources in public buildings with a particular focus on state owned buildings. It will further support the development of an enabling policy framework and build local capacity for energy audits and energy management, facilitate the adoption of Energy Management Information System (EMIS) and energy management in at least 80 new state owned buildings with the total floor area of about 1 million m2 and support the energy efficiency retrofits of at least 28 Government buildings resulting in direct GHG reduction impact of over 145,000 tons of CO2eq over a default lifetime of 25 years of the investment.
KEY WORDS	Energy efficiency, Energy audits, Energy Management System, Energy Management Information System
CONSORTIUM	1 (Ministry of Mining and Energy)
COUNTRIES	1
DURATION (start – end)	19.06. 2023 - 30.11.2026. (9.3.2027.)
TOTAL BUDGET - TOTAL (EUR)	1.505.000 US$
BUDGET – UB -FME (EUR)	1.027.500 US$
PROJECT WEBSITE	https://semus.mas.bg.ac.rs/sr/
CONTACT AT UB-FME	mbanjac@mas.bg.ac.rs

HYDROPOWER ENGINEERING

PROJECT TITLE

CITIZEN CO-CREATION: SHAPING A SUSTAINABLE FUTURE OF WASTEWATER TREATMENT IN SERBIA BY PIONEERING ENERGY-NEUTRAL & ZERO-WASTE APPROACH

ACRONYM/ PROJECT ID

DIVSCI

FUNDING PROGRAM

Citizen Science Research, The Center for the Promotion of Science (CPN)

PROJECT COORDINATOR

Assoc. Prof. Dr. Branislava Lekić, University of Belgrade - Faculty of Civil Engineering, Republic of Serbia

PROJECT COORDINATOR AT UB-FME

Prof. Dr. Ivan Božić, University of Belgrade, Faculty of Mechanical Engineering

PARTICIPANTS FROM UB-FME

Assoc. Prof. Uroš Milovančević, Teach. Asst. Bogdan Ristić

PROJECT DESCRIPTION

The core of the project is the co-participation of Divčibare and Valjevo local population and environmental activists guided by the researchers from Belgrade University in research for the BAT for Divčibare WWT under the new EU energy/resource recovery guidelines. Based on citizen science inputs, student-level WWT designs will be developed to include several energy/resource recovery scenarios in at least two MSc theses. The primary methodology focuses on a strong citizen science approach, and active involvement of the general public in scientific research through data collection, collaboration with researchers, other project team members and stakeholders, crowdsourcing, co-participative data validation, analyses and results interpretation, and public engagement to educate the wider population, including children and the youth.
The core members of the DIVSCI team are citizens already active in the Divčibare community, mostly through the Citizens Association (CA) Sustainable Divčibare with 540 supporters, and researchers from UBGRF&UBMF. Bringing the CA as a partner is expected to increase the inclusivity rate of a wider range of citizens and other CAs to the project, establish new ties with stakeholders and strengthen the existing ones while simultaneously facilitating the Project Lead's management of citizen activities. Citizens Large-scale citizen engagement in a scientific project will help address WW management issues from a wider, local and grassroots perspective. Through a collaborative process, citizens will build their capacity to identify the real research problem, what really matters, while stakeholders and researchers will be able to fine tune their theoretical knowledge by considering citizen input. will feel more confident about their role and involvement in decision- and policy making when it comes to shaping a sustainable future and protecting the environment for future generations.

KEY WORDS

wastewater, neutral energy, zero waste approach, citizen science resarch

CONSORTIUM

7 (University of Belgrade-Faculty of Civil Engineering, University of Belgrade-Faculty of Mechanical Engineering, Citizens Association Sustainable Divcibare, 4Waters d.o.o, Secondary Medical School „Dr Miša Pantić"-Valjevo, Elementary school "Jovan Miodragović", JKP "Vodovod Valjevo")

COUNTRIES

1 (Republic of Serbia)

DURATION
(start – end)

24 months (21.12.2023 - 21.12.2025.)

TOTAL BUDGET - TOTAL (EUR)

3.999.488.89 RSD (≈ 34.180 EUR)

BUDGET – UB -FME (EUR)

≈ 16,32%

PROJECT WEBSITE

https://www.divsci.rs/

CONTACT AT UB-FME

ibozic@mas.bg.ac.rs
umilovancevic@mas.bg.ac.rs

PROJECT TITLE	ARTIFICIAL INTELLIGENCE AND NATURE INSPIRED OPTIMIZATION IN THE FUNCTION OF SUSTAINABLE WATER MANAGEMENT
ACRONYM/ PROJECT ID	AINIOF-SWM
FUNDING PROGRAM	Serbian Science and Diaspora Collaboration Program: Knowledge Exchange Vouchers
PROJECT COORDINATOR	Dr. Snežana Kirin, Innovation Center of the Faculty of Mechanical Engineering, Belgrade
PROJECT COORDINATOR AT UB-FME	Prof. Dr. Ivan Božić, University of Belgrade, Faculty of Mechanical Engineering
PARTICIPANTS FROM UB-FME	Prof. Dr. Ivan Božić
PROJECT DESCRIPTION	Diaspora Collaboration Program ICMF and TU Delft, Netherlands TU Delft's world known scientists apply and improve the newest artificial intelligence software in the function of optimal water, other resources and energy management. They successfully quantify and incorporate the main criteria of sustainability and the environmental protection in to optimization models. Some nature inspired optimization models are developed and invented by professors from the Department of Water Management, Delft University of Technology. Some of them were invented by professor Kapelan personally. The high experience of professor Kapelan as Project Partner from TU Delft helped in developing models for sustainable water management, as well in transferring the existing software application to wider area, as a complex energy system are. Several goals were achieved during the project: 1. To develop the water management methods from the aspect of sustainability under the condition of incomplete and uncertain information, including prediction of the availability of water resources from the aspect of different impacts. 2. To transfer and adopt the software developed for water management problems to the wider problems in complex energy system
KEY WORDS	Artificial Intelligence, Sustainability, Water management, Optimisation, Energy system
CONSORTIUM	3 (University of Belgrade-Faculty of Mechanical Engineering, Innovation center of the Faculty of Mechanical Engineering in Belgrade, Delft University of Technology)
COUNTRIES	2 - Republic of Serbia and Netherlands
DURATION (start – end)	April 2021. - 31.08.2023.
TOTAL BUDGET - TOTAL (EUR)	10. 000
BUDGET – UB -FME (EUR)	9.500
PROJECT WEBSITE	https://www.inovacionicentar.rs/projekti/artificial-intelligence-and-nature-inspired-optimization-in-the-function-of-sustainable-water-management-serbian-science-and-diaspora-collaboration-program-knowledge-exchange-vouchers/
CONTACT AT UB-FME	ibozic@mas.bg.ac.rs

GENERAL MACHINE DESIGN

PROJECT TITLE	DEVELOPMENT OF DRAFT HYDROGEN STRATEGY FOR THE REPUBLIC OF SERBIA AND ORGANIZATION OF ROUND TABLES AND PROMOTIONS, FINANCED BY THE BMZ VIA DECIDE PROJECT (CONTRACT NUMBER 81278053)
ACRONYM/ PROJECT ID	-
FUNDING PROGRAM	BMZ via the DECIDE project
PROJECT COORDINATOR	Chamber of Commerce and Industry of Serbia
PROJECT COORDINATOR AT UB-FME	Prof. Emeritus Radivoje Mitrović
PARTICIPANTS FROM UB-FME	Prof. Emeritus Radivoje Mitrović, Prof. Dr. Vladimir Popović, Prof. Dr. Miloš Banjac, Prof. Dr. Dejan Radić, Prof. Emeritus Miroljub Adžić, Prof. Dr. Dragoslava Stojiljković, Prof. Dr. Milorad Motok, Prof. Dr. Aleksandar Jovović, Prof. Dr. Aleksandar Milivojević, Prof. Dr. Miloš Đukić, Prof. Dr. Dragan Milković, Prof. Dr. Ivan Blagojević, Dr. Vuk Adžić, Dr. Dragan Stamenić, Asst. Prof. Dr. Žarko Mišković
PROJECT DESCRIPTION	Drafting the Concept of Serbia's Hydrogen Strategy will take place in two phases. The result of the first phase is the concept of the Hydrogen Strategy of Serbia, defined as "a directed effort in creating Serbia's Energy Strategy based on the use of domestic scientific capacities, experiences, capabilities, and education aimed at utilizing natural resources in collaboration with international organizations". The basic concept includes: •A summarized review of the latest research in the fields of technology, production processes, experiences, financing methods, risks (commercial, technological, health, environmental, etc.), regulatory development, and institutional solutions; •An analysis of domestic resources and an overview of the potential for using hydrogen energy within the total energy balance; •An analysis of the barriers and challenges in implementing hydrogen technology; •An analysis of human resources (including the diaspora); •An overview of funded projects and programs (from both domestic and international sources); •A preliminary analysis of the educational system's effectiveness in addressing hydrogen transition challenges. A review of relevant domestic laws and strategic documents; •A review of relevant EU regulations (with a special focus on requirements for opening chapters), as well as strategic orientations in international relations. In the second phase of the project, the selected contractor submits their final version of the concept of the Hydrogen Strategy of Serbia to the Serbian Chamber of Commerce and the Ministry responsible for energy affairs.
KEY WORDS	Strategy, Hydrogen, Serbia
CONSORTIUM	6 consortium members: Faculty of Mechanical Engineering at the University of Belgrade, Faculty of Technology and Metallurgy of the University of Belgrade, Institute Vinča, Institute of chemistry, technology and metallurgy – ICTM, Institute Mihajlo Pupin – IMP, Elektro Mašinogradnja
COUNTRIES	2 countries: Serbia and Germany
DURATION (start – end)	22.12.2021-30.04.2022.
TOTAL BUDGET - TOTAL (EUR)	-
BUDGET – UB -FME (EUR)	55.000
PROJECT WEBSITE	-
CONTACT AT UB-FME	rmitrovic@mas.bg.ac.rs

PROJECT TITLE	ASSESSMENT AND REDUCTION OF RISKS RELATED TO THE 3D PRINTING TECHNOLOGIES USED IN THE AUTOMOTIVE INDUSTRY
ACRONYM/ PROJECT ID	-
FUNDING PROGRAM	Bilateral project between Republic of Serbia and Republic of Slovakia
PROJECT COORDINATOR	Assoc. Prof. Dr. Žarko Mišković, University of Belgrade – Faculty of Mechanical Engineering (UB-FME), Serbia Tomas Milesich, Slovak Technical University in Bratislava – STU, Slovakia
PROJECT COORDINATOR AT UB-FME	Assoc. prof. Dr Žarko Mišković
PARTICIPANTS FROM UB-FME	Assoc. Prof. Dr. Žarko Mišković, Prof. Emeritus Radivoje Mitrović, Prof. Dr. Nenad Zrnić, Prof. Dr. Zoran Stamenić, Asst. Prof. Dr. Aleksandar Dimić, Teach. Asst. Jovana Antić
PROJECT DESCRIPTION	Effective risk assessment holds significant importance in the car industry when it comes to the utilization of 3D printing technologies. Due to the unique characteristics of this technology, a thorough evaluation of potential risks is necessary to uphold safety, maintain quality, and adhere to regulatory standards. Factors like temperature control, ventilation, and machine maintenance play a vital role in ensuring the safety and quality of 3D printing operations. By assessing these elements, potential risks such as thermal hazards, exposure to hazardous fumes, or mechanical failures can be identified. Consequently, suitable precautions and protocols can be implemented to mitigate these risks effectively. Assessing design and structural integrity also holds significance in the risk assessment process for 3D-printed car components. By evaluating the performance and reliability of printed parts under varying conditions, such as different loads and environmental factors, the adherence to essential safety standards can be ensured. This assessment helps minimize the risk of structural failure or compromised functionality, both of which could have detrimental effects on vehicle performance and occupant safety. Health and safety considerations take a prominent role in risk assessment for 3D printing in the car industry. Ensuring that operators and individuals involved in 3D printing operations are aware of potential hazards related to materials, as well as risks associated with exposure to fumes or nanoparticles, is crucial. Implementing appropriate safety measures such as ventilation systems, personal protective equipment (PPE), and comprehensive training programs helps mitigate the risk of injuries or health issues. Taking into account previously listed facts, it could be concluded that the comprehensive risk assessment plays a vital role in the successful integration of 3D printing in the car industry. By identifying and addressing potential risks associated with material selection, the printing process, design integrity, health and safety considerations, and legal compliance, stakeholders can ensure the responsible and safe implementation of 3D printing technology in vehicle manufacturing processes - which is exactly the scope of the proposed project.
KEY WORDS	Risk assesment, Safety measures, 3D printing, Rapid prototyping, Automotive industry
CONSORTIUM	2 consortium members: University of Belgrade – Faculty of Mechanical Engineering (UB-FME), Slovak Technical University in Bratislava – STU
COUNTRIES	2 countries: Serbia and Slovakia
DURATION (start – end)	01.04.2024-31.12.2025.
TOTAL BUDGET - TOTAL (EUR)	
BUDGET – UB -FME (EUR)	
PROJECT WEBSITE	-
CONTACT AT UB-FME	zmiskovic@mas.bg.ac.rs

ENGINEERING MATERIALS AND WELDING, TRIBOLOGY, FUELS AND COMBUSTION

PROJECT TITLE	CYBERPHYSICAL SYSTEMS AND DIGITAL TWINS FOR THE DECARBONISATION OF ENERGY-INTENSIVE INDUSTRIES (CA22151)
ACRONYM/ PROJECT ID	CYPHER
FUNDING PROGRAM	COST
PROJECT COORDINATOR	Alessandro Parente, Université Libre de Bruxelles, Belgium
PROJECT COORDINATOR AT UB-FME	Prof. Dr. Nebojša Manić
PARTICIPANTS FROM UB-FME	Prof. Dr. Dragoslava Stojiljković, Res. Assoc. Dr. Miloš Radojević, Res. Assoc. Dr. Ivana Čeković
PROJECT DESCRIPTION	Industrial production is responsible for roughly 30% of global energy use, with Energy Intensive Industries (EIIs) representing the largest share (54% of OECD's total industrial energy consumption). The current energy crisis, originated by Russia's war with Ukraine, Western sanctions against Moscow, and Russia's cut-off of pipeline gas, has made the cost of natural gas soar and ignited a cascade resulting in the increased prices of other energy sources. As a learning for the future, it is crucial to strengthen the EU's capacity to produce energy while reaching net-zero emissions by 2050. The solution lies in producing Renewable Synthetic Fuels (RSFs), including renewable hydrogen, from excess wind and solar power to decarbonise EIIs. Also, at the 26th UN Climate Change Conference of the Parties (COP26), it was unanimous that hydrogen can play a vital role in the way we bring fully decarbonised energy to our lives. However, a complete understanding of the impact of RSFs on EII systems remains unaddressed mainly due to a lack of comprehensive methods and specialised and multidisciplinary knowledge in RSFs' combustion, which can be advanced through approaches bringing together data-driven methods and physics-based modelling for accurate simulation of combustion technologies through enhanced modelling, sensing and digital twins. The main aim of CYPHER is to propel the collaborations between European researchers and industrial stakeholders to foster the use of cyber-physical systems (self-updating digital twins) and ultimately promote a safe and sustainable adoption of RSFs as a critical path for EII decarbonisation.
KEY WORDS	Data-driven modelling - Sustainable combustion technologies - Renewable synthetic fuels - Soft-sensing - Turbulent reacting flows
CONSORTIUM COUNTRIES	46 33 (Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Lithuania, Luxembourg, Netherlands, North Macedonia, Norway, Poland, Portugal, Serbia, Slovenia, Spain, Sweden, Switzerland, Türkiye, United Kingdom)
DURATION (start – end)	Oct 2023 – Oct 2027
TOTAL BUDGET - TOTAL (EUR)	125.000 (Oct 2023 – Oct 2024)
BUDGET – UB -FME (EUR)	3.370 (Oct 2023 – Oct 2024)
PROJECT WEBSITE	https://cypher.ulb.be/
CONTACT AT UB-FME	nmanic@mas.bg.ac.rs

PROJECT TITLE	PROJECT TITLE ADVANCED COMBUSTION AND POLLUTION CONTROL TECHNOLOGIES IN THE UTILIZATION OF BIOMASS AND SOLID RECOVERED FUELS
ACRONYM/ PROJECT ID	Bilateral project: People's Republic of China (PRC) and Republic of Serbia
FUNDING PROGRAM	Xi'an Jiaotong University - School of Energy and Power Engineering University of Belgrade, Faculty of Mechanical Engineering
PROJECT COORDINATOR	Prof. Dr Dragoslava Stojiljkovic
PROJECT COORDINATOR AT UB-FME	Prof. Dr Nebojša Manić
PARTICIPANTS FROM UB-FME	Prof. Dr Nebojsa Manic
PROJECT DESCRIPTION	Serbia and China intend to submit this intergovernmental scientific and technological cooperation project to tackle advanced combustion and pollutant control technologies involved in the energy utilization of biomass and solid recovered fuels (SRF). The focus of the proposed project is related to the increase of utilization of biomass in the energy production sector as well as to include the SRF into energy mix for primary energy production. Implementation of some project's outputs could significantly increase the renewable energy source utilization in the Republic of Serbia, improve the overall solid waste management strategy, increase energy efficiency and reduce the emission of greenhouse gasses. The comprehensive approach of the application of novel technologies in advanced combustion and pollution control techniques will provide important information based on fundamental research and applied approach.
KEY WORDS	-
CONSORTIUM	2
COUNTRIES	2 – Public Republic of China, Serbia
DURATION (start – end)	2021-2023
TOTAL BUDGET - TOTAL (EUR)	10.000
BUDGET – UB -FME (EUR)	5.000
PROJECT WEBSITE	-
CONTACT AT UB-FME	dstojiljkovic@mas.bg.ac.rs

PROJECT TITLE	STRUCTURAL INTEGRITY, RELIABILITY AND OPTIMIZATION OF ADVANCED MATERIALS OBTAINED THROUGH ADDITIVE MANUFACTURING
ACRONYM/ PROJECT ID	SIRAMM
FUNDING PROGRAM	EU H2020 - WIDESREAD
PROJECT COORDINATOR	Liviu Marsavina, Universitatea Politehnica Timisoara, Romania
PROJECT COORDINATOR AT UB-FME	Prof. Emeritus Aleksandar Sedmak
PARTICIPANTS FROM UB-FME	Prof. Dr. Aleksandar Grbovic, Principal Res. Fellow Dr. Snezana Kirin, Principal Res. Fellow Dr. Milos Milosevic, Assoc. Prof. Dr. Goran Mladenovic, Res. Asst. Aleksa Milovanovic, Res. Asst. Dr. Isaak Trajkovic
PROJECT DESCRIPTION	Additive Manufacturing (AM) is a new technological production approach that enables the creation of lighter, stronger and optimized complex parts and systems by a digitally-driven deposition or solidification of a material. AM makes use of digital computer data from computer-aided-design (CAD) software or 3D scanned object, to guide hardware (3D printer) to deposit material, layer upon layer, or to solidify a fluid or a powder material in precise geometric shapes. Alternative names such as "3D printing" or "rapid prototyping" are casually used to discuss additive manufacturing, but each process is actually a subset of additive manufacturing. The general consensus is that AM technologies can contribute to implementing more sustainable production processes, e.g. by shortening process chains, or allowing considerable energy savings compared to conventional manufacturing processes. Overall, AM use in modern production processes has known a large diffusion in the last decade, for example in the aerospace, automotive, manufacturing and healthcare fields, but practically in all the industrial production sectors requiring the build of metallic, ceramic or polymeric parts. AM use is potentially limitless: almost everything that can be rendered using 3D modeling, can be produced using AM technology. Due to increasing demand for AM from industries, the global AM market is expected to expand at a CAGR of around 18–22% in the period 2015-2025, and to exceed more than US$ 6 billion by 2022. As mentioned above, advanced AM solutions allow complex components to be easily manufactured even remotely, once the digital description of the component is made available to the printer center. However, scientists and engineers cannot take full advantage of these technologies simply because they do not have accurate methods that permit an efficient and safely design-against-failure (especially under fatigue, i.e. under repeated or cycling loading) of additively manufactured components with embedded macro and micro stress raisers. In other words, the intrinsic characteristics of the parts obtained by AM hinder their use in applications demanding for a high safety level because the real expected life (time from starting of service to the final failure) is not easily predictable. In order to overcome barriers that actually limit the advancement and adoption of AM overall in Europe, the main objective of this twinning project SIRAMM is to fully realise and further develop the currently existing scientific potential in AM technologies of Universitatea Politehnica Timisoara (coordinator, UPT - Romania), Faculty of Mechanical Engineering University of Belgrade (UBG - Serbia) and Institute of Physics of Materials, Academy of Sciences of the Czech Republic (IPM - Czech Republic).
KEY WORDS	Additive manufactured materials, Structural integrity, Reliability, Fracturereacting flows
CONSORTIUM	University of Parma, NTNU – Trondheim; Universitatea Politehnica Timisoara; University of Belgrade, Faculty of Mechanical Engineering and Institute of Physics of Materials, Academy of Sciences of the Czech Republic
COUNTRIES	Italy, Norway, Romania, Serbia and Czech Republic
DURATION (start – end)	1.10-2019-1.4.2023, 42 months, including 6 months prolongation due to COVID
TOTAL BUDGET - TOTAL (EUR)	797.651,25
BUDGET – UB -FME (EUR)	136.868,75
PROJECT WEBSITE	www.siramm.unipr.it
CONTACT AT UB-FME	asedmak@mas.bg.ac.rs

PROJECT TITLE	APPLICATION OF NOVEL MXENE 2D MATERIALS AS LUBRICANT ADDITIVES FOR HIGHLY LOADED CONTACTS (LUBE2D)
ACRONYM/ PROJECT ID	-
FUNDING PROGRAM	Bilateral project
PROJECT COORDINATOR	Prof. Dr. Aleksandar Vencl, University of Belgrade, Faculty of Mechanical Engineering, Serbia
PROJECT COORDINATOR AT UB-FME	Prof. Dr. Aleksandar Vencl
PARTICIPANTS FROM UB-FME	Prof. Dr. Aleksandar Vencl; Teach. Asst. Aleksandra Arsić
PROJECT DESCRIPTION	Friction and wear related phenomena can have a huge impact on the longevity of machine elements such as bearings, gears or electrical connectors. Usually, oil or grease lubricants are the first choice to reduce friction and to mitigate wear. The performance of liquid lubricants is highly determined by the additive packages where for example anti-oxidants, viscosity index improver or anti wear agents are added to the respective oil or grease to increase their performance under certain tribological conditions. Very often, additives are based on sulphur or phosphor organic compounds to be efficiently used in applications. Zinc-dialkyl-dithiophosphate (ZDDP) is a prominent example that has been already applied for decades in motor oils to suppress wear in automotive engines. Due to stricter legal issues, the concentration of sulphur and phosphorous should be further reduced because of environmental concerns thus leading to the need to look for alternative options in the near future. One interesting possibility to control the wear functionality of liquid lubricants is the use of 2D materials as additives in oils or greases or even in the form of coatings as solid lubricants under vacuum conditions or higher temperatures. Since the discovery of graphene, 2D materials have attracted considerable attention in this area. 2D materials are layered materials and possess almost only in-plane bonds with very weak interactions between the individual layers. Their unique structure gives them extraordinary properties such as high strength and Young's modulus, ultralow weight, and outstanding electrical properties. Often applied for electronics, sensing, and energy materials, their high mechanical strength, flexibility and easy-to-shear ability also render them excellent candidates for solid lubrication applications. In this context, MXenes appeared to be a fascinating class of relatively new class of 2D materials of early transition metal carbides, carbonitrides and nitrides. MXenes are synthesized by selectively removing the A-group layer atoms from Mn+1AXn phases (M: early transition metals, A: group IIIA or IVA elements, and X: C or N with n = 1 − 4) and replacing them by surface terminations of −O, −OH, −F, and/or −Cl (represented by "Tx" in Ti3C2Tx), depending on the etching route.
KEY WORDS	-
CONSORTIUM	-
COUNTRIES	2 – Austria, Serbia
DURATION (start – end)	1.07.2022-30.06.2024
TOTAL BUDGET - TOTAL (EUR)	-
BUDGET – UB -FME (EUR)	4.000
PROJECT WEBSITE	-
CONTACT AT UB-FME	avencl@mas.bg.ac.rs

PROJECT TITLE	GRAIN BOUNDARIES ENGINEERED ND-FE-B PERMANENT MAGNETS (RECO2MAG)
ACRONYM/ PROJECT ID	-
FUNDING PROGRAM	EIT RawMaterials project
PROJECT COORDINATOR	-
PROJECT COORDINATOR AT UB-FME	Prof. Dr. Aleksandar Vencl
PARTICIPANTS FROM UB-FME	Prof. Dr. Aleksandar Vencl; Prof. Dr. Vladimir Popović
PROJECT DESCRIPTION	RECO2MAG builds on recent research innovations for creating radically more raw-materials efficient permanent magnets by utilising novel grain boundary diffusion via electrophoresis for reducing the Dy in the magnets developed by the Jozef Stefan Institute and re-engineering the processing of sintered NdFeB PMs currently produced by Slovenian PM manufacturer Magneti Lj. These new PMs have been developed to laboratory scale (TRL 3-5) to be used in next-generation high-efficiency electric motor designs (constructed by automotive supplier company Valeo). These technical innovations are assessed with comprehensive LCA and LCC analysis done by the Swedish Environmental Research Institute and are coupled with a comprehensive rare-earth-element (REEs) discovery and feasibility study undertaken by the Geological Survey of Slovenia and the Universities of Zagreb and Beograd. This study will identify and connect REE deposit owners with technology developers and potential processors and users in the European region and help further reduce imports and ensure a more sustainable and independent EU PM and raw materials industry. RECO2MAG gathers the needed complementary expertise of key players from geology, material science, physics, and chemistry with industrial PMs processing and electric motor designs, coming mainly from RIS countries (Slovenia, Croatia and Serbia, joined by France and Sweden), from academia (UNIZG-RGNF, UNIBG) and research (JSI, GeoZS, IVL) with an SME (Magneti Ljubljana) and industry (Valeo). RECO2MAG's ultimate goal is to combine geological, technical and economic data for advanced PM manufacture with sustainable LCA and LCC product chain organisation bridging the knowledge transfer gap in REEs and PMs to complete the knowledge triangle in RIS countries (Slovenia, Croatia), thus expanding currently fragmented expertise into a strong and long-lasting network to improve innovation capacity in PM production value chains.
KEY WORDS	-
CONSORTIUM	-
COUNTRIES	-
DURATION (start – end)	1.1.2022 - 31.12.2023
TOTAL BUDGET - TOTAL (EUR)	-
BUDGET – UB -FME (EUR)	-
PROJECT WEBSITE	-
CONTACT AT UB-FME	avencl@mas.bg.ac.rs

PROJECT TITLE
FOCUSED ION TECHNOLOGY FOR NANOMATERIALS (CA19140)

ACRONYM/ PROJECT ID
FIT4NANO

FUNDING PROGRAM
COST Action

PROJECT COORDINATOR
-

PROJECT COORDINATOR AT UB-FME
Prof. Dr. Aleksandar Vencl

PARTICIPANTS FROM UB-FME
Prof. Dr. Aleksandar Vencl

PROJECT DESCRIPTION

The aim of the Action is to create a coordinated effort in the field of ion beam based nanoengineering that will put European researchers and commercial businesses at the forefront of the quickly moving field of functional nanostructured materials. The Action will unite developers and practitioners of focused ion beam technology to enable them to build the most efficient tool sets and application techniques for the identification, fabrication and characterization of next generation functional nanomaterials. The Action will develop ion sources and instrumentation for the sub 10 nm fabrication and materials analysis. These objectives will be reached through Europe wide networking between researchers from theoretical and experimental groups traditionally not interacting closely. The challenge to overcome is the increasing fragmentation of the FIB landscape between operators of established technologies, developers providing new techniques and methods and designers of functional nanomaterials not aware of the possibilities provided by these emerging focused ion beam technology and methods.

A tight feedback loop between academic and commercial technology developers with researchers of fundamental ion solid interactions and scientists developing new functional nanomaterials will be formed through a series of conferences, training schools and short term scientific missions. This will enable European researchers to develop bleeding edge functional nanomaterials allowing them to offer solutions to many of the important socioeconomic questions defined by the various research programs in Europe. New and emerging focused ion beam technology developed by the Action will play an important role for Quantum Technologies, Semiconductor Industry, Functional Nanomaterials and Medical applications.

KEY WORDS
-

CONSORTIUM
-

COUNTRIES
-

DURATION (start – end)
2022-2024

TOTAL BUDGET - TOTAL (EUR)
-

BUDGET – UB -FME (EUR)
-

PROJECT WEBSITE
https://cypher.ulb.be/

CONTACT AT UB-FME
avencl@mas.bg.ac.rs

PROJECT TITLE	IMPROVING AIR QUALITY BY UTILIZATION OF ADVANCED FUEL (BIOMASS PELLETS) IN SMALL SCALE HOUSEHOLD APPLIANCES (PROJECT NUMBER: 00136377/00127312/2023/11)
ACRONYM/ PROJECT ID	-
FUNDING PROGRAM	UNDP
PROJECT COORDINATOR	University of Belgrade, Faculty of Mechanical Engineering
PROJECT COORDINATOR AT UB-FME	Prof. Dr. Dragoslava Stojiljkovic
PARTICIPANTS FROM UB-FME	Prof. Dr. Nebojša Manić, Assoc. Prof. Dr. Vladimir Jovanović, Res. Assoc. Dr. Miloš Radojević, Res. Assoc. Dr. Ivana Čeković
PROJECT DESCRIPTION	The aim of the project titled is to reduce particulate emissions from the household sector that uses solid biomass in the combustion process to obtain thermal energy. To achieve the reduction of the particulate emission is possible through the primary (direct) measure. The primary (direct) measure applied during the realisation of this project is the so-called improvement of fuel quality using additives. The advanced fuel (AF) in the form of biomass pellets is produced from biomass and additive mixture which is fully in accordance with Renewable Energy – Recast to 2030 Directive regarding sustainability criteria (RED II Directive) regarding biomass sustainability criteria. The main role of the additive is to enable the binding of gaseous alkaline compounds through appropriate reactions or adsorption, forming less harmful and less volatile compounds, which affects the reduction of the amount of particles emitted into the air.
KEY WORDS	Pellet, additive, emission reduction, particulatereacting flows
CONSORTIUM	1
COUNTRIES	1
DURATION (start – end)	June-December 2023
TOTAL BUDGET - TOTAL (EUR)	21.600 USD
BUDGET – UB -FME (EUR)	21.600 USD
PROJECT WEBSITE	-
CONTACT AT UB-FME	dstojiljkovic@mas.bg.ac.rs

PROJECT TITLE	QUANTITATIVE DATA ON BIOMASS AVAILABILITY AND QUALITATIVE INFORMATION ON THE STATE-OF-THE-ART IN BIOECONOMY IN SERBIA
ACRONYM/ PROJECT ID	CELEBIO
FUNDING PROGRAM	THE BBI-JU UNDER THE EUROPEAN UNION'S HORIZON 2020 RESEARCH AND INNOVATION PROGRAMME UNDER GA NO. 838087
PROJECT COORDINATOR	The Central European Initiative - Executive Secretariat
PROJECT COORDINATOR AT UB-FME	Prof. Dr. Dragoslava Stojiljkovic
PARTICIPANTS FROM UB-FME	Prof. Dr. Nebojsa Manic, Assoc. Prof. Dr. Vladimir Jovanovic
PROJECT DESCRIPTION	Report of regional scope that shall encompass quantitative data and qualitative assessments on countries, adjacent to the core project area, and in particular: Serbia, acknowledged the need to procure the necessary expertise through an open call, launched a tender procedure on 21 January 2020 with ref. 1803.18-19-17a.
KEY WORDS	-
CONSORTIUM	9
COUNTRIES	9
DURATION (start – end)	June 2019 – November 2020
TOTAL BUDGET - TOTAL (EUR)	749.350
BUDGET – UB -FME (EUR)	4.800
PROJECT WEBSITE	https://celebio.eu/
CONTACT AT UB-FME	dstojiljkovic@mas.bg.ac.rs

PROJECT TITLE	DEMONSTRATION OF INNOVATIVE INTEGRATED BIOMASS LOGISTICS CENTRES FOR THE AGRO-INDUSTRY SECTOR IN EUROPE
ACRONYM/ PROJECT ID	AGROinLOG
FUNDING PROGRAM	Horizon 2020
PROJECT COORDINATOR	FUNDACIÓN CIRCE CENTRO DE INVESTIGACIÓN DE RECURSOS Y CONSUMOS ENERGÉTICOS, Spain
PROJECT COORDINATOR AT UB-FME	Prof. Dr. Dragoslava Stojiljkovic
PARTICIPANTS FROM UB-FME	Prof. Dr. Nebojsa Manic, Assoc. Prof. Dr. Vladimir Jovanovic, Prof. Dr. Aleksandar Jovovic
PROJECT DESCRIPTION	The main goal of AGROinLOG is the demonstration of Integrated Biomass Logistic Centres (IBLC) for food and non-food products, evaluating their technical, environmental and economic feasibility. The project is based on three agro-industries in the fodder (Spain), olive oil production (Greece) and cereal processing (Sweden) sectors that are willing to deploy new business lines in their facilities to open new markets in bio-commodities (energy, transport and manufacturing purposes) and intermediate bio-products (transport and biochemicals). The synergies of applying IBLCs business in existing agro-industries can have a positive impact over 18% in final product price, giving a clear competitive strength to a wide segment of agro-industries, which can exploit this privileged situation compared to a new biomass supply business built from scratch.
KEY WORDS	-
CONSORTIUM	15 partners
COUNTRIES	Spain, Italy, Netherlands, Greece, Sweeden, Belgium, Ukraine, republic of Serbia
DURATION (start – end)	2016-2020
TOTAL BUDGET - TOTAL (EUR)	6.385.661
BUDGET – UB -FME (EUR)	76.578
PROJECT WEBSITE	http://agroinlog-h2020.eu/en/home/
CONTACT AT UB-FME	dstojiljkovic@mas.bg.ac.rs

NATIONAL AND INTERNATIONAL PROJECTS 2024.