

PROJECT PARTNER SEARCH FORM

I offer my expertise to participate as a Partner in a Horizon Europe Project

I am planning to coordinate a project and I am looking for Project Partners

TOPICS OF INTEREST

HORIZON-CL4-2021-RESILIENCE-01-01: Ensuring circularity of composite materials (Processes4Planet Partnership) (RIA)

PARTNER INFORMATION

Institute of Materials and Machine Mechanics of the Slovak Academy of Sciences (IMSAS) would like to join the consortium as a Project partner / Work Package Leader / Task Leader to contribute to the call as mentioned above.

IMSAS leads a national project related to **recycling using carbon-based reinforcement from waste** (agro-food and textile) **for engineering applications**. IMSAS may participate in the research focused **on renewable waste** (such as cellulose or lignin) valorisation through **the eco-friendly route**. The carbon products based on cellulose waste could be attractive in the **filtration and remediation of the environment** or in the **metal matrix composites as reinforcement**.

Further, due to the characterisation infrastructure and material science background, **IMSAS can participate in the projects as a partner for analysis of physical and mechanical properties of materials by structure characterisation** such as light and electron microscopy: HR-STEM including secondary electrons (BF,DF), scattered beam electrons (HAADF), characteristic X-rays (EDS), and electron energy loss (EELS) for material analysis from the microstructure down to the atomic level; SEM is equipped by EDS, WDS and EBSD analysers and also allows characterising of even non-conductive materials with using various observation modes at different observation settings; X-ray tomography; light optical spectrometers; thermal analysis DSC, DTA, LFA, DMA and TGA analysers, dilatometry; etc.) and materials testing equipment (universal computer-controlled testing machines, static creep tests, hardness and microhardness testing, thermomechanical testing, fatigue tests, etc.). **Mechanical properties characterization** could be investigated by the microhardness, hardness tests, tensile tests, quasi-static three-point bending fracture toughness tests, dynamic fracture toughness as well as thermomechanical testing.

Description of the Legal Entity

Institute of Materials and Machine Mechanics of Slovak Academy of Sciences (IMSAS) is a research institute founded by the Slovak Academy of Sciences in 1953. Traditionally, the IMSAS is focused on the research and development of new advanced materials based on non-ferrous metals and solving a wide range of related issues - from the development of unique technology of new materials, through exploring and characterising their internal structure, to the analytical and numerical modelling a simulation of the properties.

IMMS has successfully implemented over 20 EU funded projects (FP5 – H2020, COST, Interreg) and over 80 national research projects. IMMS also provides excellent research owning 20 patents, over 45 publications published worldwide in 2020, over 752 highly impacted CC publications and more than 5400 citations since its establishment. IMSAS team consists of 36 researchers, 12 researcher assistants, 12 members of administration support and 15 technicians and other employees. We constantly seek new collaboration opportunities, especially in Horizon Europe, to strengthen the position of the IMSAS in the international level.

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IMSAS cooperates closely with companies in Slovakia, Germany, France, and Austria in the field of material development, microstructural observation, and mechanical testing. Some of the cooperation leads to the successful research projects. Besides highly qualified staff, IMSAS provides various technological devices and testing methods.

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| <input type="checkbox"/> Higher Education | <input checked="" type="checkbox"/> Research Institution | <input type="checkbox"/> Public Administration |
| <input type="checkbox"/> Industry /SME | <input type="checkbox"/> NGO | <input type="checkbox"/> Other: <i>Please specify</i> |

Expertise of the Team Leader

Nada Beronská (F, 40) is the Head of the Division of the microstructure of surfaces and interfaces. She has a Ph.D. in Material Science and Physical metallurgy focused on research and characterisation of microstructure and thermophysical properties of metal matrix composite materials. She has 15+ years of work experience with the characterisation of microstructure surfaces and interfaces in the field of electron microscopy and thermal analysis (DTA, TG, dilatometry measurements). She participated in 3 projects of 6th and 7th FP EU, more than 12 national and international research, and industrial projects focused on basic research, applied research, and development in materials. She is the author or co-author of more than 20 CC (Current Content) publications.

Description of the (Research) Team

Martin Nosko, (M, 42) is director of IMSAS. He has a Ph.D. in Material science and Physical metallurgy. He has 17+ years of work experience in research projects. He participated and still participates as a principal investigator or research team member of more than 27 national and international research projects focused on basic research, applied research and development in materials science and its characterisation. His participation in industrial projects is extensive both on the national and international levels. He is the author or co-author of more than 56 CC (Current Content) publications.

Lubomír Orovčík, (M, 35) is the Head of Scanning electron microscopy lab. He has a Ph.D. in Material science and Physical metallurgy focused on Heat treatment of aluminum alloys. He has 10+ years of work experience in research projects as a researcher in the characterisation of different organic and inorganic materials. He participated and still participates as a research team member of more than 10 national and international research projects focused on basic research, applied research and development in materials science and its characterisation. He is the author or co-author of more than 45 CC (Current Content) publications.

Stefan Nagy, (M, 36) is a researcher of IMSAS. He has 9 years of work experience in research projects and electron microscopy. His research experience is in the field of composite metal materials, interface characterisation, and thin films. In the mentioned fields he uses different techniques of electron microscopy (SEM, TEM, SAED, HRSTEM, HR-EDS) for the microstructural characterisation of materials down to the atomic level. He is participated as investigator or research team member in 11 national and international research projects focused on basic research, applied research and interdisciplinary research. He is the author or co-author of more than 22 CC (Current Content) publications.

Alena Opálková Šišková, (F, 38) is a researcher with 14+ years of experience in the field of polymer chemistry. She gained Ph.D. in macromolecular chemistry. She participated and still participates as a principal investigator or research team member of more than 25 national and international research projects focused on basic research, applied research and development in materials science and its characterisation. Recently, she focuses on the alternative processes of polymeric waste recycling into the fine fibers and their

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application, especially on developing materials for filtration and remediation of the environment. She is the author or co-author of more than 30 CC (Current Content) publications.

Miroslav Čavojský, (M, 43) is a researcher of IMSAS. He has 11+ of work experience in research projects and powders metallurgy. His research experience is in the field of biomaterials, chemical analysis of investigated magnesium-based powder-metallurgically prepared alloys and composites. He uses different techniques of spectroscopy (optical emission and XRF analysis) and topography surface analysis in the mentioned fields. He participated as investigator or research team member in 10 national and international research projects focused on basic research, applied research, and interdisciplinary research. He is the author or co-author of more than 20 CC (Current Content) publications.

Potential role in the project

- Research Training
 Dissemination Other: workpackage leader, task leader

e.g. project leader, scientific coordinator, workpackage leader, product development expertise.

Already experience as a	Coordinator	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	Partner	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
	Expert Evaluator	<input type="checkbox"/> YES	<input type="checkbox"/> NO
CONTACT DETAILS			

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