FIT-4-NMP

Strategic and targeted support
to incentivise talented newcomers
to NMP projects under Horizon Europe

HIGH-PERFORMANCE and SUSTAINABLE COMPOSITES INNOVATION WORKSHOP
TU DRESDEN 13-14.10.2022

Center of Mineral Processing,
Łukasiewicz Research Network – Institute of Non-Ferrous Metals
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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 958255

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Center of Mineral Processing – we recover what is the most valuable from over 70 years.

- Wide range of services related to the processing of raw minerals, wastes and secondary raw materials,
- Recycling of electronic scrap, batteries, PV panels etc.,
- Technologies fitted for client requirements,
- Design and delivery of mineral processing machines,
- Experience in the implementation of national and international projects,
- Screening, crushing, milling, gravity separation, flotation, electrostatic and magnetic processes from laboratory to pilot scale.

Center of Mineral Processing headquarter

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HORIZON-CL4-2023-TWIN-TRANSITION-01-31:

ENERGY EFFICIENCY BREAKTHROUGHS IN THE PROCESS INDUSTRIES (PROCESSES4PLANET PARTNERSHIP) (RIA)

1. My key idea for contribution to a project under this topic

- **Pre-treatment of raw minerals before mineral processing plant** –
  Using x-ray and optical sorting systems before processing plant can reduce the amount of produced tailings and decrease the amount of used energy.
- **Flotation of ore tailings by using new types of flotation reagents** – this method will be dedicated for Cu tailings and Zn-Pb tailings. Analyse potential of new flotation reagents on Cu flotation tailings + comparison with old types of reagents. For flotation of Cu tailings it can provide design of new tailing pond flotation plant, in Zn-Pb tailing flotation plant it will change the recovery value of useful minerals.
- **X-ray & Optical sorting systems in recovery of coal from coal tailing hips**
  Application of x-ray & optical sorting systems can eliminate this circuit and also make all process not so complicated. Solution with modern sorter can reduce amount of operations to 2 like screening and x-ray/optical separation.

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2. Competences relevant to the topic and motivation to apply

- 70 years of experience in ore & coal processing industry,
- Applied solutions in copper mining industry, zinc and lead mining industry with ongoing projects, for example:

Project nr POIG.01.03.01-24-019/08 – Development of technology for enrichment process of flotation tailings

Project nr POIR.01.01.01-00-0884/20 - Development of the innovative technology of non-ferrous metals enrichment by using a pre-concentration system based on the AI algorithms.

- Ongoing projects and cooperation with a producer of x-ray & optical sorting systems, for example:

Project nr POIR.01.01.01-00-0884/20 - Development of the innovative technology of non-ferrous metals enrichment by using a pre-concentration system based on the AI algorithms.

HORIZON-CL4-2023-TWIN-TRANSITION-01-31
HORIZON-CL4-2024-RESILIENCE-01-24
RELEVANT EQUIPMENT AND FACILITIES

Equipment group	Lab - scale	Pilot - scale
Crushing	Disc mill from 40 to 0,5mm	Jaw, cone, hammer crushers from 15 to 2mm; Jaw crusher from 200 to 25mm
Grinding	Batch ball, rod mills 2,5L/3L/5L/15L of vol.	Ball mill for Bond test; Ball, rod mill 15 kg to 200 kg; Magnetic mill up to 300 kg/h
Classification		Hydrocyclones 0,5"/1"/2"/3"; Multi-deck vibrating screens apertures 0,3 – 5 mm
Size analysis apparatures	Laser diffraction particle size analyser particle size 0,02 µm – 2mm; Fritsch test sieves apertures 20 µm – 4 mm	
Gravity separation	Zigzag air separator; Hydroseparator 100 to 150 kg/h; Concentrating tables; Jig machine up to 200 kg/h	
Heavy media separation	Heavy media analysis	
Flotation	Flotation machines, batch and continuous work, volume of 0,10 L to 1000L	
Additional equipment	Magnetic wet / dry separator up to 1,2T; Electrostatic separator	
Pilot installation	Continuously operated large-scale flotation installation, including regrinding and classification circuit, equiped with automatic control system. Capacity 90 – 130 (190) kg/h	

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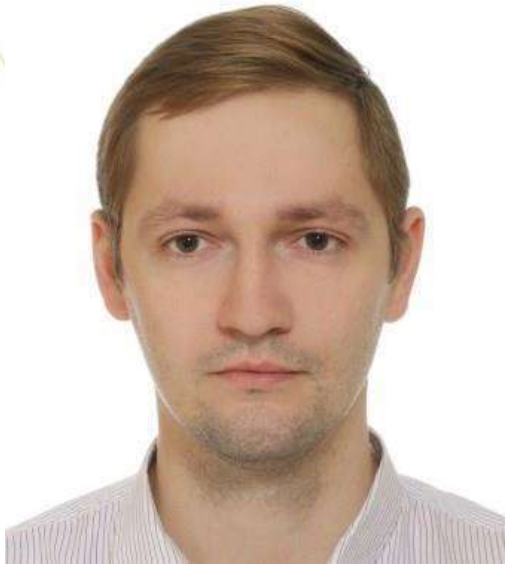

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