Geometallurgy.eu: A European Platform for Research and Education in Geometallurgy

GEOMETALLURGY.EU

Geometallurgy is an integrated approach that reaffirms the importance of ore characteristics in the whole mineral value chain. Ore characteristics include ore mineralogy, gangue mineralogy, local tectonics, ore textures and ore grades. These characteristics have strong impact on rock hardness, amenability of the ore to a certain beneficiation route and recoverability of by-products. The ore deposits' characteristics should therefore be assessed and monitored to better evaluate the potential of any prospect. Furthermore, the continuous measurement of ore characteristics and ore variables (mineralogy, texture, particle size, ..) during the whole mine life can significantly improve the overall mine performance, but this requires enhanced and affordable collection of these data types and efficient integration of processed data for the daily control of mining operation.

This challenge has the potential to significantly improve the competitiveness of the mining industry but it will require better collaboration between research actors and the mining industry. This is the objective of the GEOMETALLURGY.EU hub

GEOMETALLURGY.EU aims to enhance collaboration between the three sides of the knowledge triangle, to trigger the development of new projects and to grow the 'Geomet' community in Europe.

GEOMETALLURGY.EU is a web platform that gathers three initiatives around geometallurgy in Europe under a single umbrella organization.

In 2016, two projects were launched by the EIT Raw materials: the OREVAL network of infrastructures (see next page) which provides services in the field of ore characterization and the Geomet lifelong learning course.

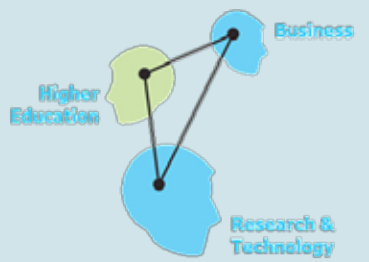
The Geomet course is a one-week training session designed for mining professionals. It introduces the fundamentals of geometallurgy with both a theoretical and a practical approach.

The GEOMETALLURGY.EU hub establishes a clear link between projects targeted to mining professionals and the **EMerald Master Program**. This two year master was launched in 2013, with the support of the Erasmus+ program. This masters' degree is built on the expertise of four major Universities and provides for the first time a coherent course offer. Twenty students from all around the world are admitted each year. The program mobility scheme enables them to experience different working environments across Europe and to benefit from the best of what each partner can offer.

The program obtained the **EIT Label** in 2016.

The Innovation Triangle

The innovation triangle is one of the most acknowledged concept when it comes to explaining the process of knowledge creation and its application through innovation. Innovation is not a linear process but requires multiple input and feedback loops between the actors of so-called 'innovation system'. This has led to an acknowledgement that policies in support of innovation should foster systemic interaction between these three forms of activity-education, research and business.



EMerald students at LTU University

OREVAL is the EIT Raw Materials network of infrastructures for ore characterization. A network of infrastructures (NOI) is an organization supported by the EIT Raw Materials. It has the mission to increase the visibility and the accessibility to remarkable facilities within Europe.

Europe has top-notch experts for ore characterization with know-how across the whole raw materials value chain.

To facilitate knowledge transfer and adoption, better interaction between researchers and industry professionals is required. OREVAL aims to fulfill this mission by appointing a single point of contact with a comprehensive communication network and excellent understanding of the state of the art technologies.

Oreval members

The OREVAL manager has experience in experimental development and the integration of different characterization techniques. He can help the industry professionals to assess innovative ideas or to identify the right partner to conduct tests or validation of an innovative idea.

The OREVAL manager can even help the interested industry partners to submit 'up-scaling' project in order to fund technology transfer projects.

Through the existing connection with the GEOMETALLURGY.EU hub, the OREVAL manager can also facilitate the placement of students for some PhD or MSc thesis works.

OREVAL expertise

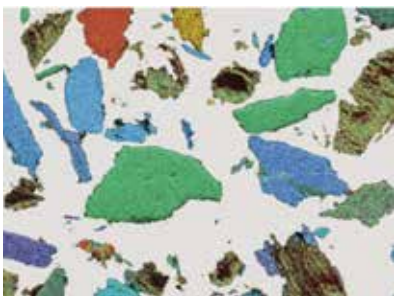
OREVAL partners are actively carrying on research and development on innovative ore characterization applications. For example, the partners are working on:

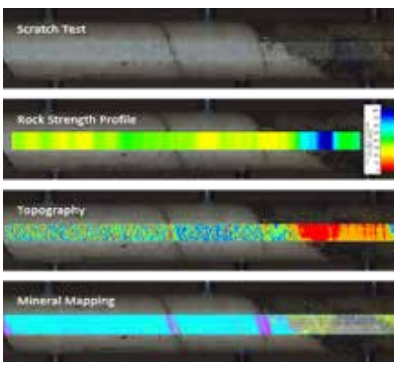
- Optics-based low cost automated mineralogy,
- 3D imaging of dynamic processes with X-Ray tomography,
- Particle-induced X-Ray emission imaging (PIXE),
- Low impact exploration techniques based on laser ablation trace element analysis (LA-ICPMS),
- The influence of mineral textures on breakability indexes,
- The on-belt particle size and shape measurement.

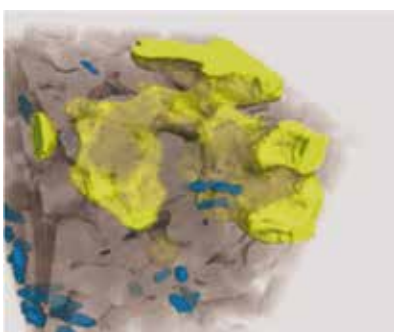
Some OREVAL members also have extensive knowledge of routine ore characterization, and an excellent understanding of the way ore characterization data must be integrated in the end-users process flow.

Ultimately, the network aims at establishing common standards, data base and BAT practices for emerging technologies in order to improve the whole quality control on these data. •

www.oreval.eu







About the EIT

Finding solutions to today's societal challenges presents us with great opportunities for innovation and entrepreneurship.

The European Institute of Innovation and Technology (EIT) is a unique EU initiative that spurs innovation and entrepreneurship across Europe.

The EIT brings together leading universities, research labs and companies to form dynamic pan-European partnerships around strategic topics. These partnerships, called Knowledge and Innovation Communities (KICs), develop innovative products and services, start new companies, and train a new generation of entrepreneurs.

The Eit Raw Materials is the partnership for innovation in the Raw Materials sector. It aims to bring ideas to market, turn students into entrepreneurs and, most importantly, to boost innovation.