

25th–27th April 2023, Zagreb, Croatia

Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb, Pierottijeva 6, 10000 Zagreb

FIRST DRAFT PROGRAM

Lectures

Practical classes, demos

Field programs

Social programs

Day 1: 25th April (Tuesday)

Time	Topic: <i>Mineralogy and Prediction of Acid Mine Drainage</i>	Leaders
8-9	AMD definition	Hassan Bouzahzah
9-10	Prediction tools	Abdellatif El Ghali
11-13	Lunch-2-go & Field trip to Rude	<i>To be confirmed</i>
14-17	AMD and Automated Mineralogy Case Study	Abdellatif El ghali
14-16	a. Malartic	Abdellatif El Ghali
16-17	b. Chelopech	Carolina Mafra
18	Dinner	

Day 2: 26th April (Wednesday)

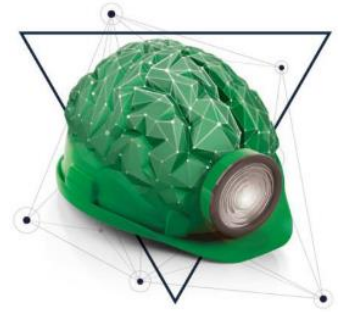
Time	Topic: <i>From Chemistry to Mineralogy</i>	Leaders
8-9	Introduction to sampling	Eric Pirard
9-13	Chemical analyses - sample preparation and measurement	
	a. Sobek test, neutralization potential determination	Hassan Bouzahzah
	b. Analysis of the collected material	Michaela Hruškova Hasan
13-14	Steering Committee working lunch	
14-15	Principle of stereology	Eric Pirard
15-16	Sample preparation for microscopy observation	Hassan Bouzahzah
16-17	Optical microscopy	Hassan Bouzahzah
17-17.30	Work flow from Optical microscopy to SEM	Hassan Bouzahzah
18	Dinner	



DIM ESEE-2 spin-off workshop for students

Innovation in process-oriented orebody characterization

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Day 3: 27th April (Thursday)

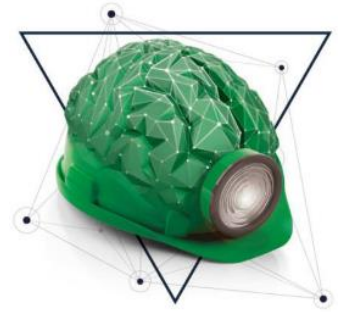
Time	Topic: <i>Quantitative Microscopy and Automated Mineralogy</i>	Leaders
8-10	Automated Mineralogy, how it works	Hassan Bouzahzah
10-11	F-AAS measurement of Fe and Cu on aqua regia	Michaela Hruškova Hasan
11-11.30	Sobek test -titration with pH control	Hassan Bouzahzah
11.30 -13	Element to mineral conversion for data reconciliation	Hassan Bouzahzah
13-14	Lunch	
14-16	Process Mineralogy and Automated Mineralogy - Case study	Abdellatif El ghali
17	Dinner	



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COURSE LEADERS



Prof. Eric Pirard

Head of Minerals Engineering, Materials and Environment department

Eric PIRARD is "ingenieur geologue" and professor of georesources @ULiege. Specialised in developing computer-assisted imaging techniques in geology, particle science and geometallurgy, he is heading a group of about 30 researchers (GeMMe) active in:

- process oriented mineralogical mapping
- vision and smart sorting technologies
- geological remote sensing
- energy-efficient fragmentation and pre-processing
- bio/hydrometallurgical processing

This group is a core-partner of several major EU and regional projects aiming at characterizing and recovering metals from challenging ores and complex end-of-life products. Eric Pirard is the academic coordinator of the European Master in Resources Engineering (EMerald) a labelled master program part of the EITRawMaterials Academy.



Dr. Hassan Bouzahzah

Sr. researcher in applied mineralogy and Acid Mine Drainage

Hassan Bouzahzah completed a PhD in Environmental Sciences at the University of Quebec in Abitibi-Témiscaminque (Canada). He has over 15 years professional experience during which he has acquired a strong experience in mineral characterization using various techniques ranging from optical microscopy, X-ray diffraction, and especially those including micro-beam analysis (energy and wavelength dispersive spectroscopy, SIMS and laser ablation). Since 2016, he is working at the University of Liège where he is in charge of the Automated mineralogy system providing services for mineral processing and acid mine drainage prediction. Current research interests include automated mineralogical

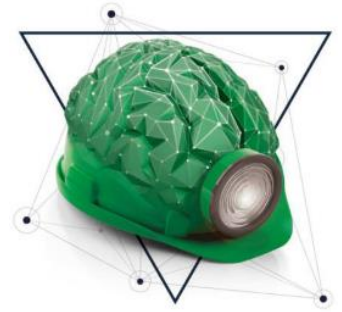
analysis and applications for ore deposit regarding mineral recovery, sample preparation for SEM observations, and acid mine drainage prediction.



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Dr. Michaela Hruškova Hasan

Michaela Hruškova Hasan was born in the Czech Republic. In 1999 she enrolled to study analytical chemistry at the Charles University in Prague. In 2004 she defended master and in 2008 a doctoral thesis and acquired a Doctoral degree in the field of analytical chemistry. Focus of both thesis was on clays and clay minerals and their characterization by XRD, FTIR, UV-VIS and CEC determination using F-AAS detection. During the study she was employed at the Institute of Inorganic Chemistry, Czech Academy of Sciences and at the Academy of Fine Arts in Prague. In 2008, after moving to Zagreb, she worked briefly as a technician at the Croatian Geological Survey and was employed by the Faculty of Mining, Geology and Petroleum Engineering.

Currently, she is the head of the Laboratory for Analysis of Geological Material managing GLP and workflow processes.