

Microscopic techniques to study mineral materials in cultural heritage

An online workshop for the optimal use of polarized light microscopy and SEM to better understand archaeological and building materials

September 7 - 12, 2020

jointly organized by the
University of Applied Arts Vienna
and
BDA - Federal Monuments Authority Austria

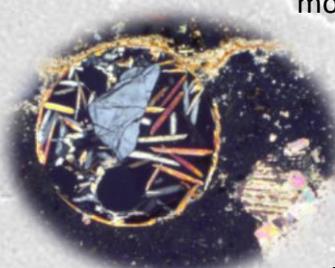
Organizers and lecturers

Prof. Dr. Johannes Weber, petrographer, University of Applied Arts Vienna/Austria
Dr. Farkas Pintér, geologist, BDA Vienna/Austria

“MICROSCOPY IS THE MOST EFFECTIVE ANALYTICAL TECHNIQUE FOR GATHERING INFORMATION ON HISTORIC ARTEFACTS AND BUILDING MATERIALS”

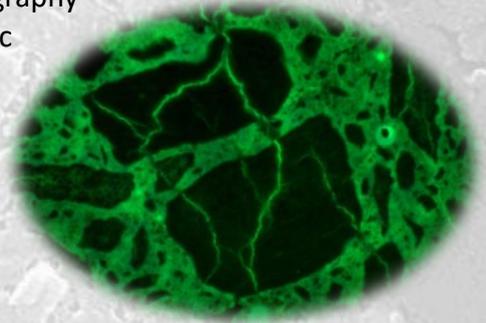
Background and aim of the Workshop

The analysis of the mineral material of architectural and archaeological objects in the laboratory is a frequently challenging task for conservation scientists, building researchers and archaeologists. It includes the identification and characterization of stones, mortars and ceramics as well as the assessment of their structural and material failures. Within the range of various methods of analysis employed, thin section petrography, especially when combined with SEM, offers a powerful method to gain relevant information on historical and modern building materials. As for most imaging analyses, the success of this approach does not only depend on the quality of the sections, but most of all on the skill of the expert in selecting the most appropriate mode of observation and interpreting the results. Planned as a platform for scientists and experts with a background in mineral artefacts, the six-day workshop is aimed at demonstrating and discussing the potential of light microscopic and SEM techniques in the field of restoration, building research, conservation science and archaeology-archaeometry. The main focus is laid on the thin section analysis of mortars, plasters, concrete, stone and ceramics by applying transmitted and reflective light. Composition, workmanship and degradation will be discussed.



Special times require special and innovative solutions, therefore this year's microscopy workshop will be held as an online event!

The size of our group will be kept reasonably small to allow for a vivid discussion throughout the workshop. Lectures and discussions are in English. They will be jointly held by two conservation scientists with degrees in geology and petrography and a sound background in the use of different microscopic techniques in their fields. Following an introduction on methodology, each type of material will be quickly discussed on a general level before displaying examples of analysis by microscopy of actual samples.



Terms of workshop participation

A full 6 day participation amounts to **600 EUR**.

The participation fee includes digital course materials.

Informal registration shall be sent not later than **August 10 2020** by e-mail to johannes.weber@uni-ak.ac.at. You will then within short receive a confirmation with details of payment which must be installed **not later than August 26, 2020**. Otherwise the place is going to someone else.



As the number of participants is limited, a 'first come, first serve' policy will be followed according to the date of registration. Should no sufficient number of participants register, the event will be cancelled. In that unlikely case, you will be informed as soon as possible; payments will be fully reimbursed.

Upon request, three participants can be granted admittance to the course at a reduced fee. Students and participants from low-income countries will be preferred. Applicants should explicitly state their request, add a short CV and inform about their motivation to attend along with their registration.

Program

Monday, September 7	
10:00 – 12:15 CET	Welcome Introduction to sample preparation, polarized light microscopy and other microscopic techniques I.
13:15 – 15:30 CET	Introduction to polarized light microscopy and other microscopic techniques II. Basics of scanning electron microscopy
Tuesday, September 8	
10:00 – 12:15 CET	Stone decay under the microscope, consolidants in the pore space Building ceramics (theory)
13:15 – 15:30 CET	Building ceramics (microscopy)
Wednesday, September 9	
10:00 -12:15 CET	Mortars - classification and historical context Lime and dolomitic lime (theory)
13:15 – 15:30 CET	Lime and dolomitic lime (microscopy)
Thursday, September 10	
10:00 – 12:15 CET	Pozzolanic and brick lime mortars (theory and microscopy)
13:15 – 15:30 CET	Natural hydraulic lime mortars (theory and microscopy)
Friday, September 11	
10:00 – 12:15 CET	Natural and Roman cement of the 19th cent. (theory and microscopy)
13:15 – 15:30 CET	Historical and modern Portland cement (theory and microscopy)
Saturday, September 12	<i>Optional program SEM (not yet specified)</i>

