Thematic Session 17

Advanced microscopy in clay research

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The widespread application of ubiquitously distributed clays and clayey nanomaterials has significantly impacted our daily life. To fully understand and better utilize clayey nanomaterials, it is important to accurately characterize the microstructure, composition, properties, particle interaction processes and behavior of those nanomaterials. Recent advances in modern instrumentation and technology, especially in electron/ion and other microscopy, have greatly improved methods of data acquisition and analysis of clay materials. These advances have contributed to significant progress in determining complex 3D structure, and the understanding of fundamental behavior and dynamic interaction of clays and clayey nanomaterials.

This session will be devoted to the application of recently developed and advancedment of microscopy, including electron/ion microscopy, AFM, STEM, Raman, IR and X-ray microscopy, and to the new possibilities offered by combining with other methodology (EDS, EELS/EF/spectrum imaging, EBSD, ToF-SIMS and XRF) in clay materials research. Experimental research, especially *in-situ* environmental and computational approaches aimed at scaling up structural and property information obtained at the atomic/molecular scale are also welcome.

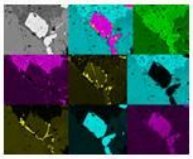
Keywords: Electron/ion/X-ray microscopy, Clay characterization, In-situ experiments, Analytical techniques using electron/ion/X-ray beams, 3D microstructure.

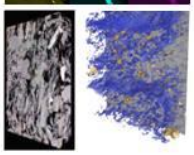
Potential Journals: Clays and Clay Minerals, Clay Minerals, Applied Clay Science, Micron.

Advanced Microscopy in Clay Research

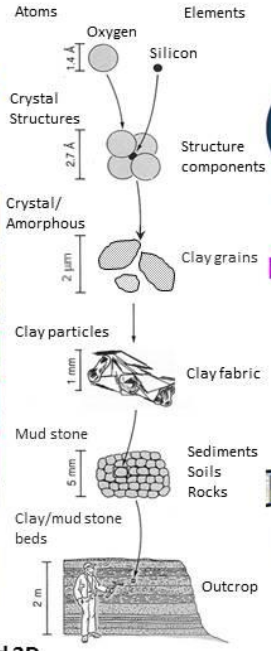
We seek abstracts of all kinds of clay studies observed in natural and nano labs via:

Geological Column and Microscope Column





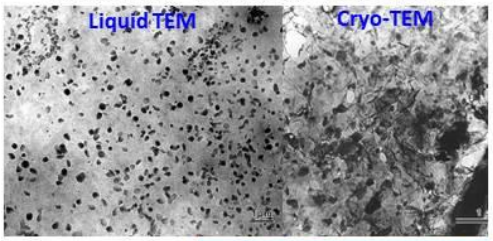
Microchemistry and 3D images of clays

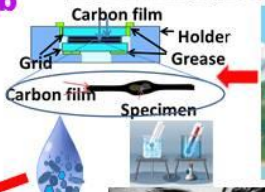


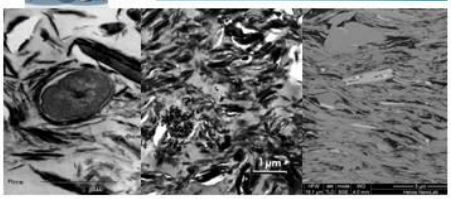
Nano Lab

Advanced Microscopy Technology

Clays in ETEM – beyond high vacuum CTEM







Clays in marine sediments and outcrop