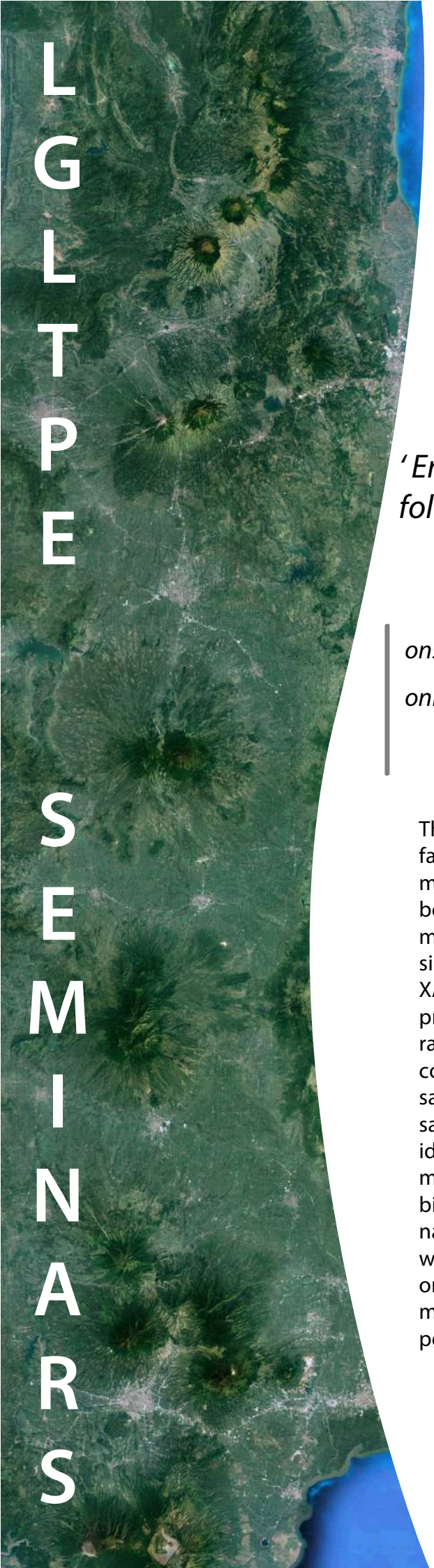

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'Employing X-ray nanoprobe spectromicroscopy to follow biomineralization in bacteria and microalgae'

Mon, 12th December 2022 @ 14h

onsite: *ENS Lyon, Amphi L*

online: *https://ent-services.ens-lyon.fr/entVisio/quickjoin.php?hash=e77e029dfb2d19e4382a8765a26c4c5f4888f7b37005616ae290b561053d537b&meetingID=9678*

The availability of X-ray microscopy techniques at synchrotron facilities has stimulated scientific advancements on the study of metals in microorganisms. In particular, high flux sub-100 nm X-ray beams allow for single cell and even single nanoparticle measurements. In addition to element-specific imaging, simultaneous collection of X-ray absorption spectroscopy data (e.g., XANES) enriches the capabilities of studying chemical and structural properties at the nanoscale. The culmination of these aspects of X-ray microscopy and the possibility to work under ambient conditions has opened the door for measurements with fluidic sample environments to conduct measurements on hydrated samples. In light of this, magnetotactic bacteria (MTB) serve as an ideal system to harness the aforementioned capabilities of X-ray microscopy, particularly for the study of magnetite biomineralization. This talk will cover the application of X-ray nanoprobe microscopy to inspect the composition of iron species within magnetotactic bacteria at the single cell level. Further results on calcium carbonate biomineralization by coccolithophore microalgae will be presented along with recent advancements in performing X-ray nanoprobe measurements on living cells.

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