

Wet STEM - A new SEM Method Revealing High Resolution Transmitted Information from Hydrated Samples

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Hydrated and wet samples are of importance for different scientific disciplines but in particular for life, pharmaceutical and material sciences.

Wet STEM delivers high resolution transmission information from wet materials such as emulsions, suspensions or thin polymer films.

It can be applied as well to a broad range of life science and environmental specimen including labeled or unlabeled mammalian, bacterial or fungal cells.

Conventional high vacuum SEM investigations of hydrated materials typically involve a preparation step where the samples are either dried or frozen. Both methods can lead to the formation of various artifacts like shrinking, displacement or aggregation of particles.

Since the introduction of Environmental Scanning Electron Microscopy it is possible to investigate wet / hydrated matter without the occurrence of drying artifacts. Wet STEM applies ESEM technology to STEM imaging and enables high resolution transmission information from hydrated samples.

Here we present the results of Wet STEM imaging on representative samples from life and material sciences.