

Metafer

Automated Imaging
of Diatom Samples



Slide Archiving and Image Analysis

Overview images, morphologic pre-selection, and high-resolution imaging of diatoms

The compelling diversity of diatoms, but also their importance for environmental monitoring makes it desirable to have an automated, simple, and fast solution for imaging and archiving of diatom samples. Since diatoms have a distinct three-dimensional structure, imaging at high magnifications should also involve the acquisition of focus stacks.

Metafer is based on a motorized research microscope

Metafer is the renowned slide scanning platform of MetaSystems. Based on a high-end research microscope, Metafer offers full flexibility in the choice of magnifications and contrasting methods. The dedicated slide scanning software allows to use and automate all microscope features, and to integrate them in smart imaging workflows. Each scanning protocol can be stored as a user-adaptable settings file (the *Classifier*). By selecting the respective classifiers the same system can be used simultaneously for different imaging tasks.

Diatom samples can be flexibly digitized

For diatom research the creation of sample overview images (for archiving purposes) and acquisition of single organisms as high magnification focus stack images can be done in one go - unattended and automatically. All images can be opened in the dedicated viewing software anywhere in the network. Regions in the overview image can be interactively selected, and their coordinates can be sent back to Metafer to begin a high-resolution scan. This works even through the internet, if the optional image server software VMD is available.

DIATOMS

MetaCyte Analyzes the Image

MetaCyte for Metafer is capable of performing a pre-selection of diatoms or other objects. Hereby the system identifies target organisms by a large number of morphology features, which can be selected and stored in the *Classifier*. After the scan each detected object is displayed as a gallery image together with the exact coordinate on the sample. Any measured feature (or a combination of them) can be used to select subpopulations of interest.

Metafer was made for High Throughput

Metafer is ready for high throughput: the SlideFeeder x80 hosts up to 800 samples in handy slide frames (delivered to the system in magazines of 80 slides each). The bar code reader identifies the samples, and the AutoOiler, a fully automated, programmable immersion oil dispensing system, facilitates the change from low-power to immersion oil objectives.



MetaSystems

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