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***Title: The Multi-Mode Mosaic framework for automated microscopy and analysis***

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Abstract:

In modern light microscopy, gathering information from different microscopy modes and combining them for quantitative analysis is an important issue. In addition there is the demand to acquire images at high resolution and magnification while keeping an overview of the entire sample under the microscope.

We present a Multi-Mode Mosaic framework for automated multi-mode microscopy, combined with tiling of the images even at high magnification in order to create high-resolution composite multi-mode images. Acquisition and analysis of time-lapse experiments with several movies in parallel and at different positions is also embedded in the system. The automated acquisition system in combination with a powerful analytical framework enables the analysis of complex issues in for instance cell biology, tissue morphology and model organism microscopy.