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Light Sheet Illumination can enhance the resolution of Light Field microscopy

Light sheet fluorescence microscopes have high spatial resolution but sequential scanning of the planes limits the maximum imaging speed that can be achieved. On the other hand, light field microscopes and other extended depth of field imaging methods have high temporal resolution but suffer from low spatial resolution. Here we show a method to dynamically increase the spatial resolution of a light field microscope using multiple light sheet illumination. This method essentially allows trading the temporal resolution of the light field for increased spatial resolution, with the possibility of making this tradeoff on the fly with software. This approach extends the versatility and the range of applicability of light field microscopy, without additional hardware changes, enabling fast adaptation of the microscope to the requirements of different biological experiments.

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Terms and Conditions

Yes

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