

CONFOCAL NANOSCOPY – FAST 3D-RECORDINGS AND LIVE CELL IMAGING WITH THE NEW LEICA TCS STED

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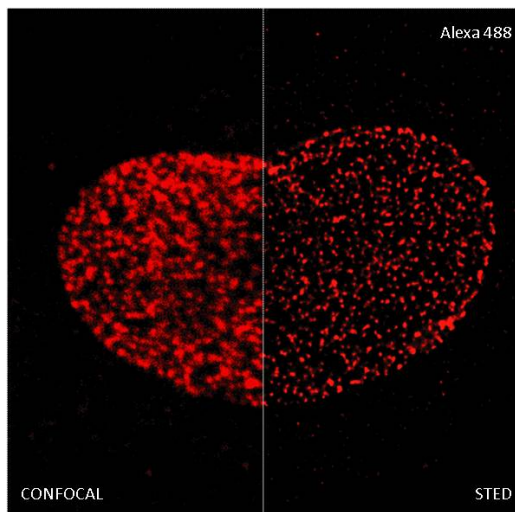
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The development in the area of superresolution microscopy is spectacular, especially within the previous few years [reviewed in 1]. It has led to several important findings, already, particularly by using Stimulated Emission Depletion (STED) microscopy [2-9]. The implementation of continuous wave (CW) lasers emitting in the visible spectral range opens up new perspectives for biomedical research.

Leica is introducing its latest product, the new TCS STED CW which dramatically enhances the usability of superresolution. The integration of an orange CW laser to increase the resolution has made it possible to investigate fixed and living intact specimen labelled with standard fluorophores like Alexa488 and Oregon Green and also with fluorescent proteins like YFP.

The photophysical processes involved are discussed and the technical realisation is presented. Examples for various applications from the fields of neuroscience, cell biology and vesicle transport are demonstrated. Finally, future perspectives are discussed.



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