Max-Planck-Innovation

abberior INSTRUMENTS

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Abberior Instruments Licenses Next Generation STED Technology

STED microscopy is a Nobel Prize awarded technology that allows to create highly resolved fluorescence images far below the diffraction limit. Earlier this year, researchers at the Max Planck Institute for Biophysical Chemistry in Göttingen have proposed and demonstrated their new *Protected STED* concept which enhances the image contrast and reduces photobleaching in STED microscopy by up to an order of magnitude. It is expected that their invention will particularly boost life-cell and medical applications of STED microscopy.

Max Planck Innovation GmbH and Abberior Instruments GmbH have finalized negotiations on the exclusive licensing of intellectual property regarding the *Protected STED* technology. "Abberior Instruments is glad to be able to integrate *Protected STED* technology into its next generation of STED microscopes," says Abberior Instruments' managing director Dr. Gerald Donnert, "which perfectly fits our strategy to provide our customers the most advanced STED microscopes for live-cell imaging."

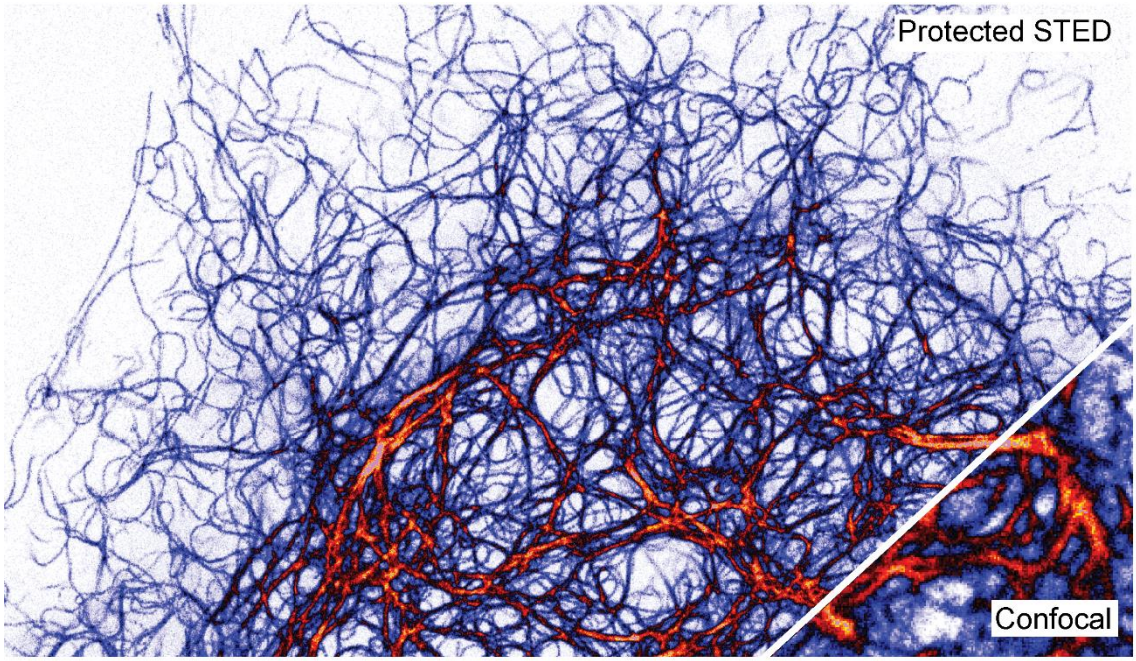

Figure 1. Protected STED microscopy provides images with unprecedented contrast and dynamic range. (Courtesy of MPI for Biophysical Chemistry.)

Protected STED is a recently introduced innovation[1] in STED microscopy which takes advantage of photoactivatable fluorescent labels. During image acquisition the initially nonfluorescent labels are photoactivated at each scan position before they are imaged with STED. Because labels outside the current scan point remain nonfluorescent and thus cannot contribute to the fluorescent background the image contrast is significantly enhanced. Furthermore, because markers in their nonfluorescent absorb neither excitation nor STED light they are not subject to photobleaching. It has been shown

that photobleaching can be reduced by up to an order of magnitude while, at the same time, the image contrast is enhanced significantly.

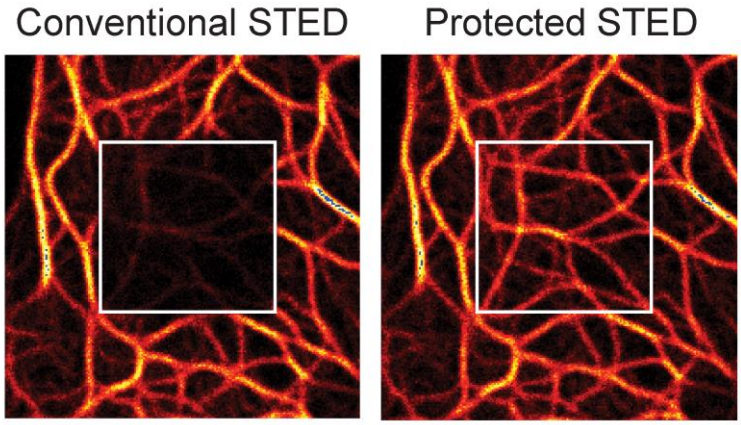

Figure 2. Reduction of photobleaching achieved with Protected STED. (Courtesy of MPI for Biophysical Chemistry.)

"The innovation takes STED microscopy to another level. Improved resolution and image contrast will provide researchers with even better capabilities, contributing to new developments in medical research. With Abberior Instruments we have won an experienced industrial partner to bring this innovation to the market," explains Dr. Bernd Ctortecka, Patent and Licensing Manager at Max Planck Innovation.

About Max Planck Innovation

As the technology transfer organisation of the Max Planck Society, Max Planck Innovation is the link between industry and basic research. Our interdisciplinary team advises and supports scientists in assessing inventions, filing patent applications, as well as founding companies. We offer industry centralised access to innovations of the Max Planck Institutes. In doing so, we fulfil an important mission: the transfer of results from basic research into commercially useful and socially beneficial products.

About Abberior Instruments

Abberior Instruments GmbH is a spin-off from the MPI for Biophysical Chemistry in Göttingen. Developed by our team of highly renowned experts in superresolution microscopy we offer superresolution microscopes based on the STED and RESOLFT technologies with a strong focus on customised solutions. Abberior Instruments has received several awards, among them the *Innovation Award of the German Economy 2014*, the *STEP Award 2014* and the Gold & Silver *Stevie Award 2016*. Its cofounders Stefan W. Hell and Gerald Donnert have been elected the *Entrepreneur of the Year 2015*.

Further Reading

[1] J. G. Danzl, S. C. Sidenstein, C. Gregor, N. T. Urban, P. Ilgen, S. Jakobs, S. W. Hell, "Coordinate-targeted fluorescence nanoscopy with multiple off states", *Nat. Photon.* **10**, 122 (2016).

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