

## Max-Planck-Institut für biophysikalische Chemie Göttingen

*Press Release*

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MAX-PLANCK-GESELLSCHAFT

### **Stefan Hell is the winner of the 10th Innovation Award of the Federal President of Germany**

The Innovation Award 2006, conferred by the Federal President of Germany, has been given to Prof. Stefan Hell, director at the Max Planck Institute for Biophysical Chemistry and head of the Department of NanoBiophotonics. His project, "Light Microscopy with Unprecedented Resolution", one of four nominated, has been selected for the award. It is the second time during its 10 year history that the prize has been given to scientists of the Göttingen Max Planck Institute.



Prof. Dr. Stefan W. Hell

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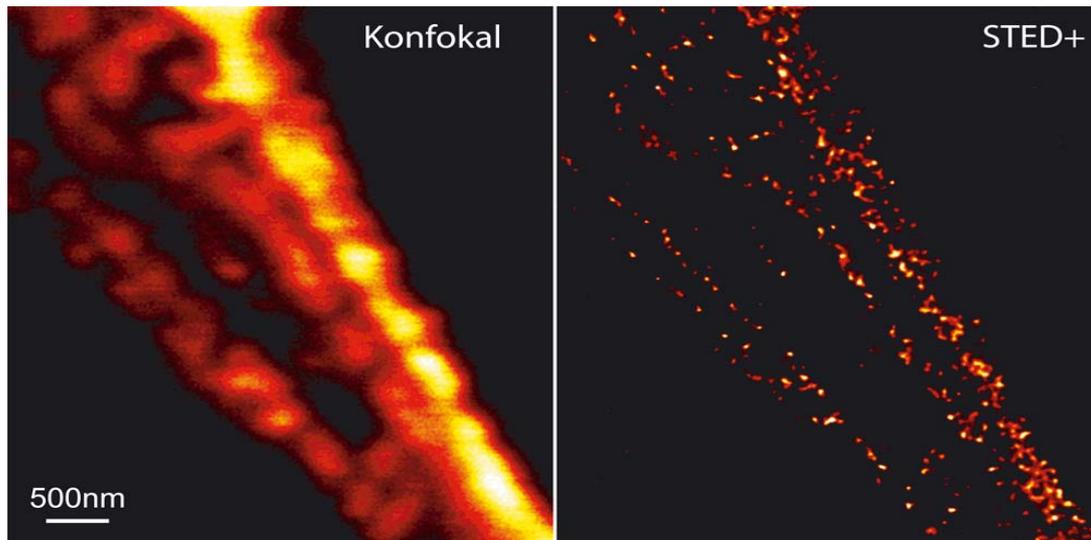
The jury has made their decision: The 10th Innovation Award conferred by the Federal President of Germany goes to Stefan Hell for his idea to improve the resolution of light microscopy beyond the formerly known physical limits. The decision was announced during a gala ceremony in Berlin by the Federal President of Germany, Horst Köhler.

The award consists of 250,000 Euros in prize money and is considered one of the most prestigious conferred for

science and innovation within Germany. The award is more than a scientific prize, however, not only identifying a project that is of high scientific value, but one which is also mature for commercial markets with concrete applications. Since 1997, when the price was first conferred, 10 projects have now been awarded. The winners in 1999 were Peter Gruss and Herbert Jäckle, also directors at the Max Planck Institute for Biophysical Chemistry.

Stefan Hell was unwilling to accept that the resolution of a lens-based light microscope was limited by physical laws. With new and unconventional ideas developed over many years, he has turned accepted textbook knowledge on its head and revolutionized the possibilities of fluorescence microscopy. With STED microscopy,

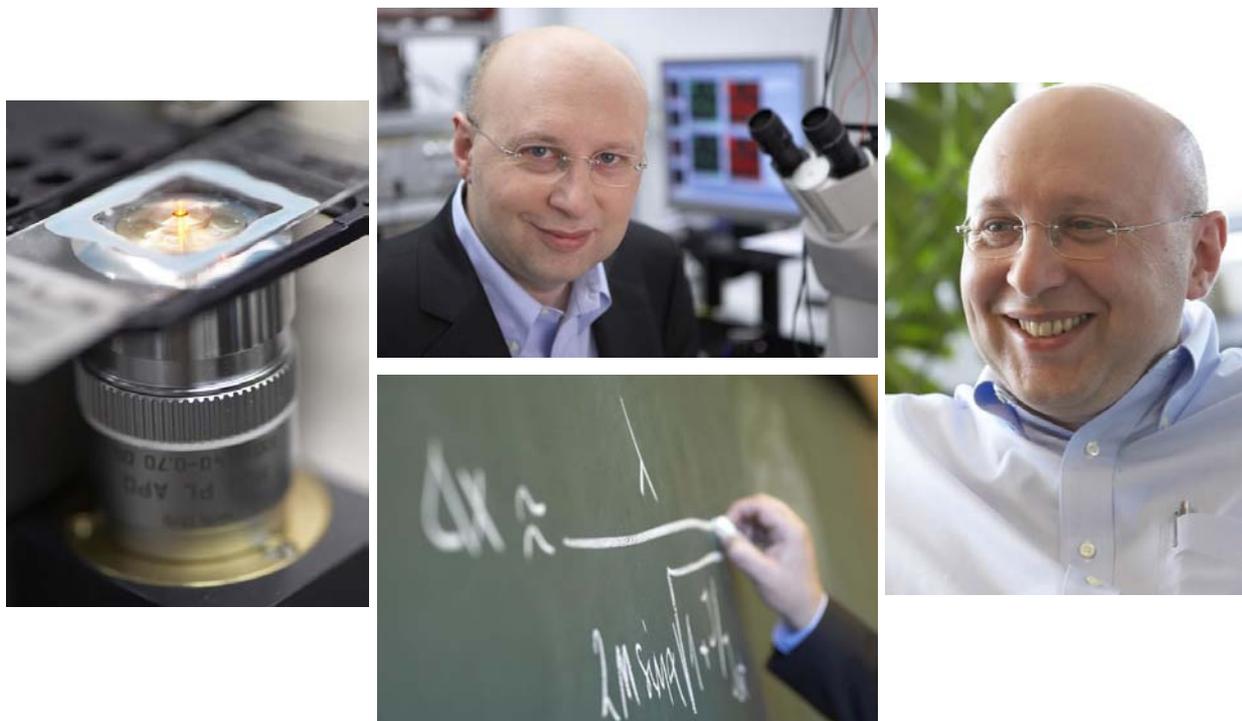
developed by Dr. Hell, details within cells can be seen which remain hidden by even the best-resolving conventional microscopes.



A look at the inside of cells becomes sharper: Both figures above show the filaments in a human nerve cell; left with a common confocal microscope, right with a STED microscope plus mathematical deconvolution. The resolution of the STED microscope is better by more than an order of magnitude. *Source: MPI Biophysical Chemistry*

The jury has selected this innovative and successful project, highlighting a new method which promises novel insights and technological applications in different fields. “Leica Microsystems, based in Mannheim, Germany, has announced that they will bring the STED microscope to the market in 2007,” says Hell. Because it will be the first commercial microscope in many years with substantially higher resolution, he adds: “It shouldn’t be difficult to sell.” The value of the instrument is not measured by the sales price, however. The substantially clearer images of details in cell interiors will likely lead to new discoveries in medical research, enabling related spin-offs: new forms of therapy, new medicines, and the associated value of these further discoveries. “This market doesn’t only have another order of magnitude, but a human dimension,” remarks Hell.

Born in 1962, Stefan Hell studied Physics in Heidelberg. He had “fantastic” teachers, from whom he acquired the enthusiasm to become a physicist, engage in research and strive to understand of the workings of nature. After attaining his doctoral degree in Heidelberg in 1990, he initially pursued his ideas as a “freelance inventor.” After a time as a postdoc at the EMBL (European Molecular Biology Laboratory) in Heidelberg, he traveled to the university in Turku, Finland, in 1993, where he worked as a group leader. There he developed the principles of STED microscopy. In 1996 Hell began as the principle investigator of a junior research group at the Max Planck Institute for Biophysical Chemistry in Göttingen, where he has lead the Department of NanoBiophotonics since 2002. Hell is a scientific member of the Max Planck Society, and since 2004, an honorary professor for experimental physics at the Georg-August University in Göttingen. He has received numerous awards: the Prize of the International Commission for Optics (ICO), among others.



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#### Further Information:

[www.deutscher-zukunftspreis.de](http://www.deutscher-zukunftspreis.de)

with an interview (in German), a short description of the method (in German) and more photographs.

[www.mpibpc.mpg.de/english/aktuell/pr/](http://www.mpibpc.mpg.de/english/aktuell/pr/)

see Press Releases of April 14, and August 10, 2006.

[www.mpibpc.mpg.de/english/reports/mpf/04\\_1MPF\\_20\\_24.pdf](http://www.mpibpc.mpg.de/english/reports/mpf/04_1MPF_20_24.pdf)

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