

اخبار ماه

باشگاه فیزیک

نشست آبان ۹۳

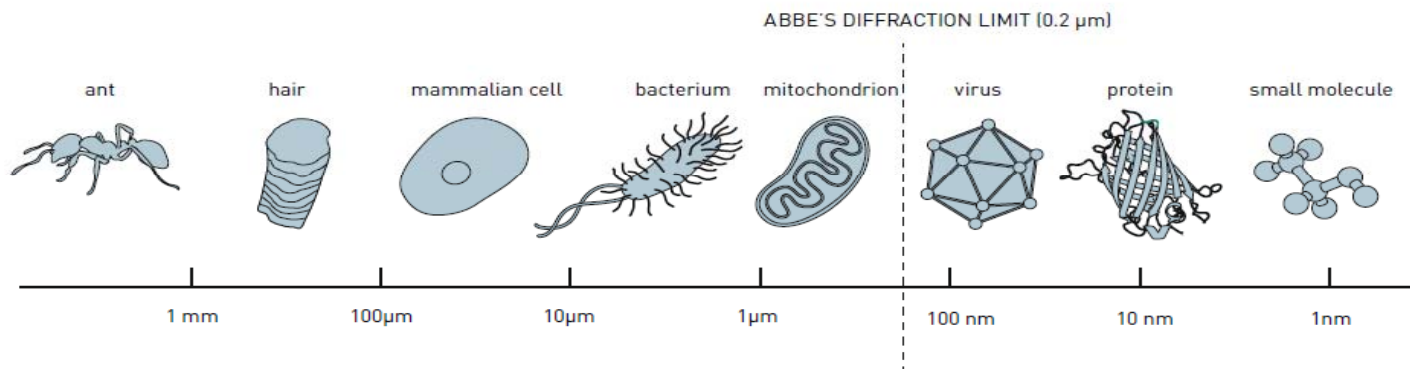
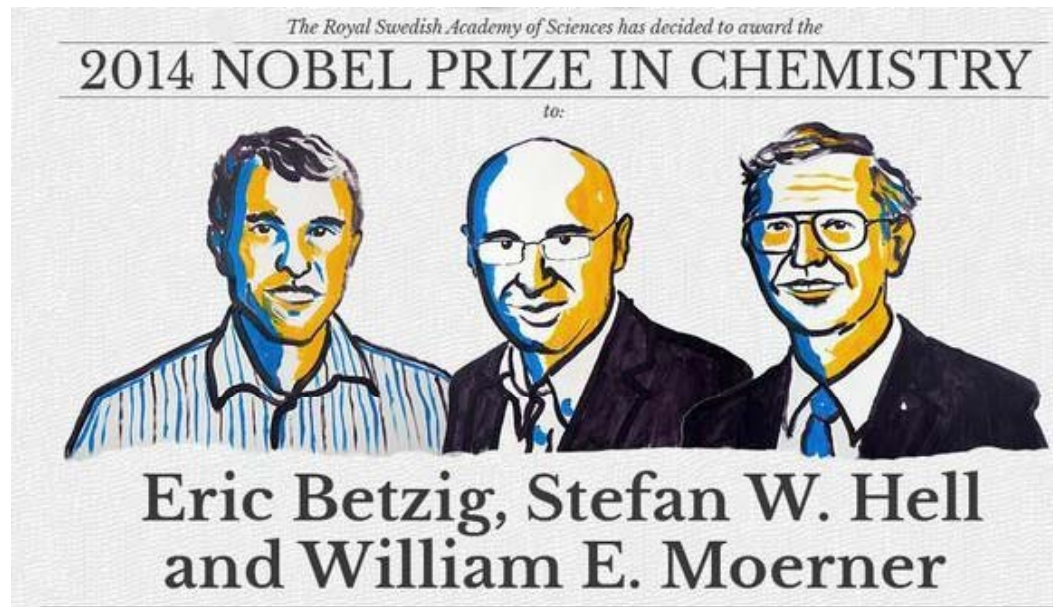
سه کوچولو در باب نوبل فیزیک

- نویسندگان مقالات در **Science** و **Nature**

- از چه کسانی نقل قول شده بود؟

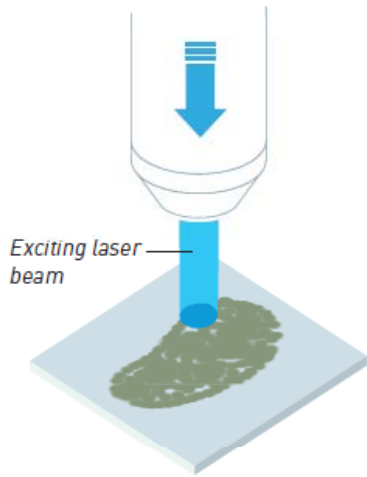
- فیزیکدان‌های وبلاگ‌نویس؟

نوبل شیمی: Nanoscope



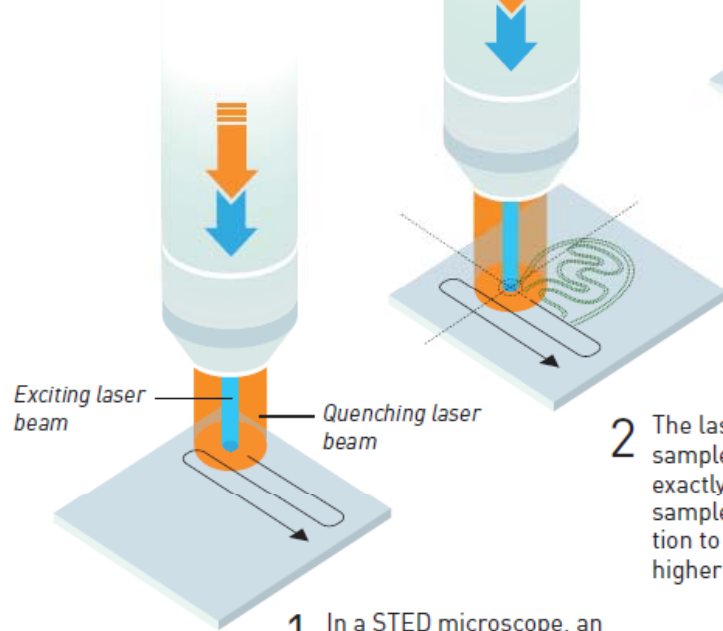
The principle of STED microscopy

Regular optical microscope



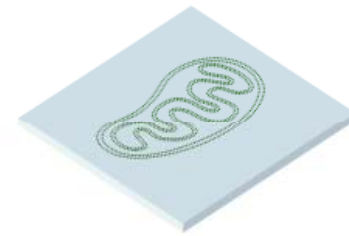
In a regular optical microscope, the contours of a mitochondrion can be distinguished, but the resolution can never get better than 0.2 micrometres.

STED microscope



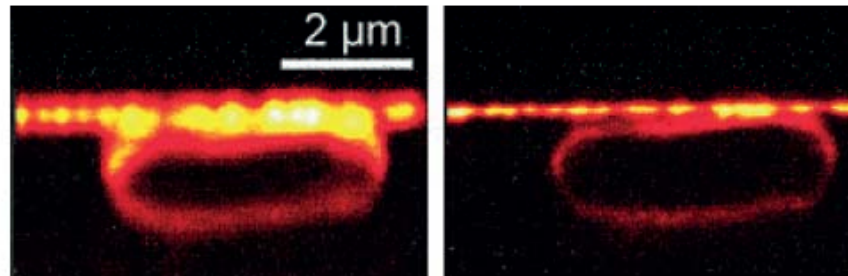
1 In a STED microscope, an annular laser beam quenches all fluorescence except that in a nanometre-sized volume.

2 The laser beams scan over the sample. Since scientists know exactly where the beam hits the sample, they can use that information to render the image at a much higher resolution.



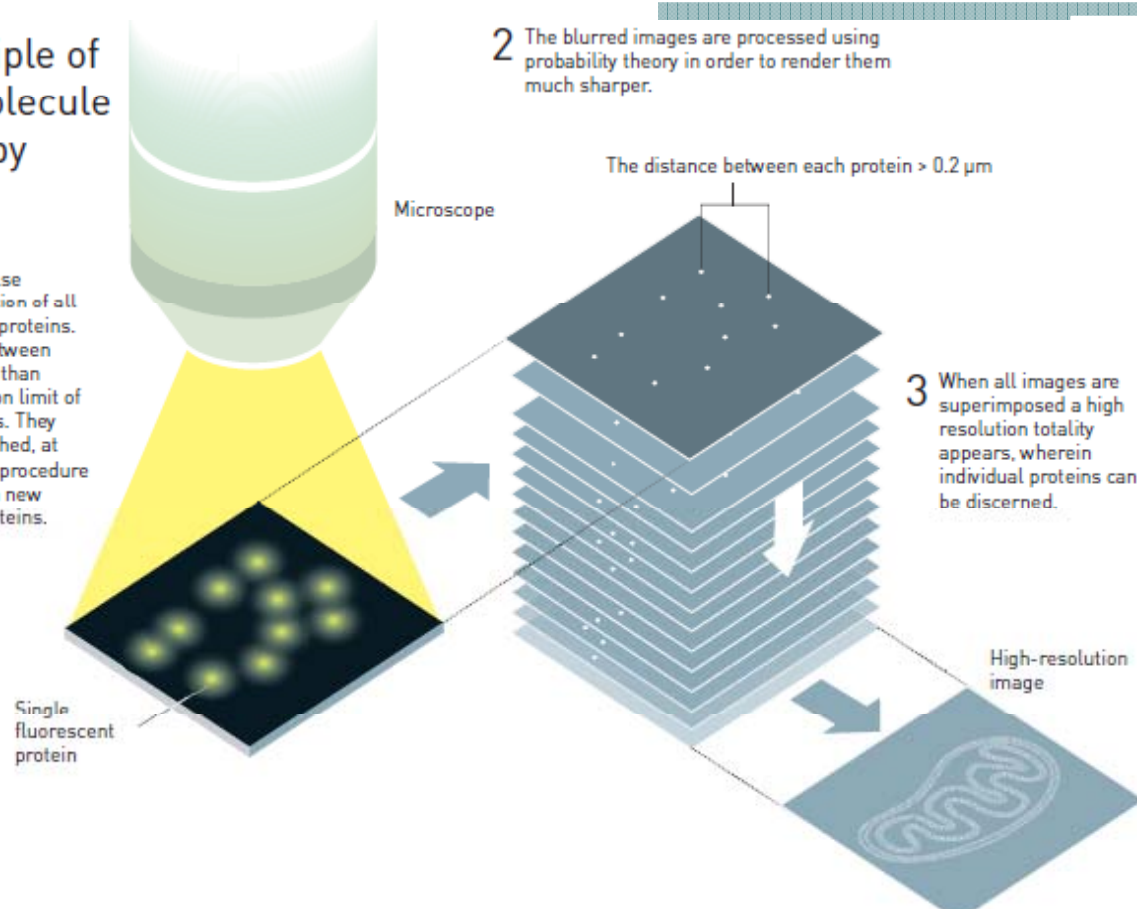
3 The final image gets a resolution that is much better than 0.2 micrometre.

E.coli



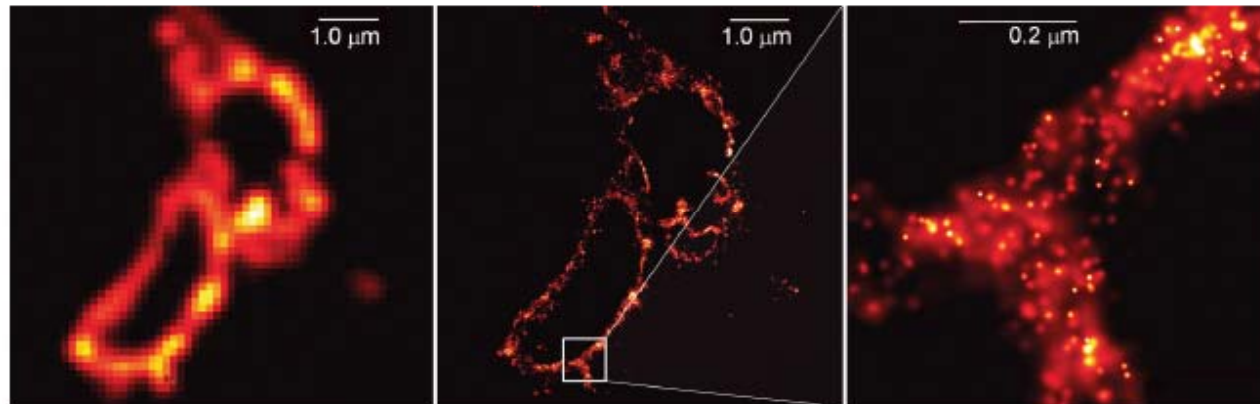
The principle of single-molecule microscopy

1 A weak light pulse activates a fraction of all the fluorescent proteins. The distance between them is greater than Abbe's diffraction limit of 0.2 micrometres. They glow until bleached, at which point the procedure is repeated on a new subgroup of proteins.

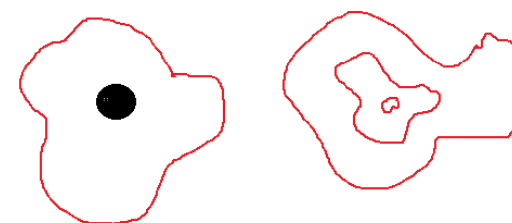
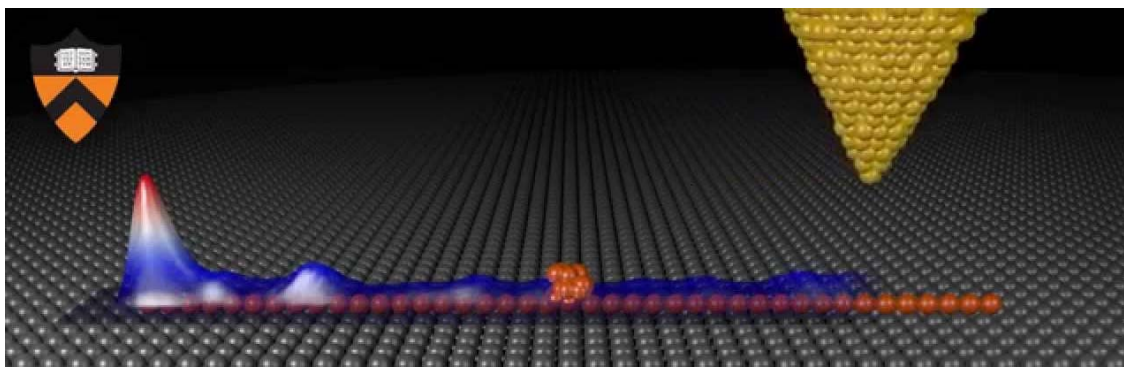


2 The blurred images are processed using probability theory in order to render them much sharper.

3 When all images are superimposed a high resolution totality appears, wherein individual proteins can be discerned.



ذره‌ای که ضد خودش است، توپولوژی، محاسبات کوانتومی و چند داستان دیگر



Alexei Kitaev



Ali Yazdani

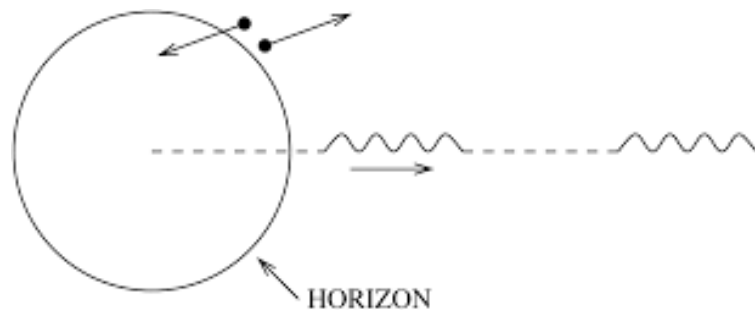


Andrei Bernevig

تابش هاوکینگ خان در آزمایشگاه اتم‌های فوق سرد



Jeff Steinhauer



خوش باشید 😊