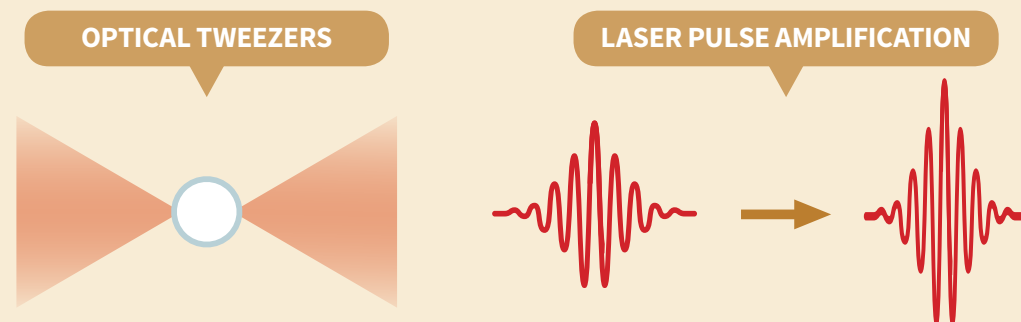


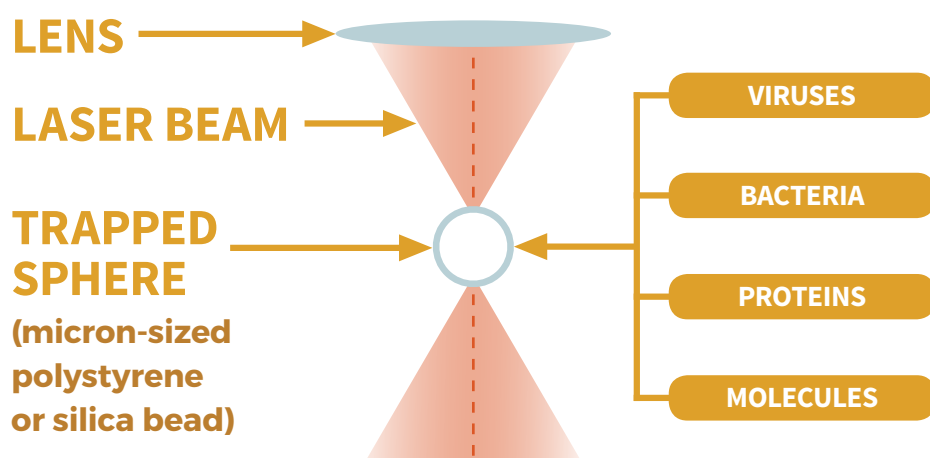
2018 NOBEL PRIZE IN PHYSICS



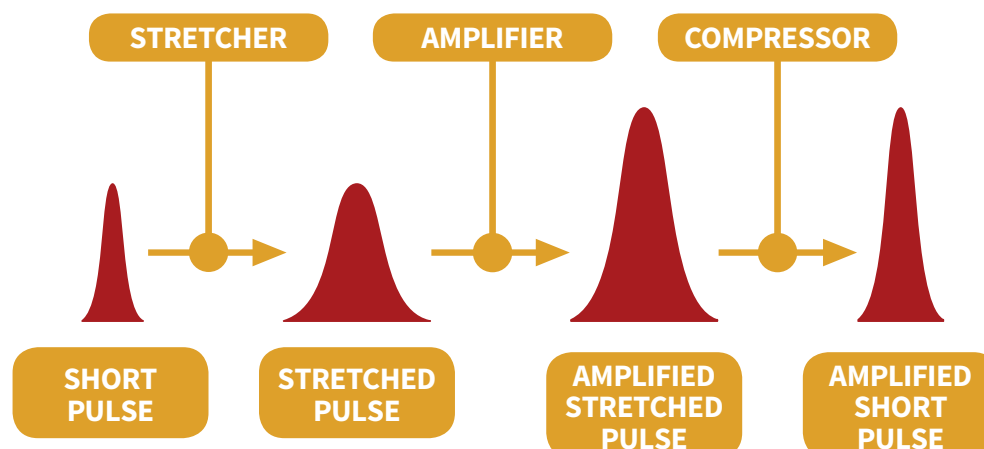
The Nobel Prize in Physics 2018 was awarded with one half to **Arthur Ashkin** and the other half jointly to **Gérard Mourou** and **Donna Strickland** for groundbreaking innovations in the field of laser physics.



The first laser was invented in 1960. Ashkin invented 'optical tweezers', using lasers to grab atoms, molecules and even live cells. Mourou and Strickland developed ultrashort and super-strong laser pulses with a range of applications.



Ashkin focused laser beams with lenses to create optical tweezers. The radiation pressure produced by the light holds particles in place. Combining optical tweezers with other methods that stop and trap atoms allows visualising of molecules that perform important roles in cells.



Mourou and **Strickland** devised a way of drastically increasing the intensity of short laser pulses. The ultra-sharp laser beams this makes possible can be used to cut and drill holes in materials and living matter. They can also be used to illuminate rapid chemical processes.

WHY DOES THIS RESEARCH MATTER?

Laser tweezers became standard equipment for studying biological processes. Ultrashort and intense laser pulses can illuminate molecular and atomic processes, and are also used in corrective eye surgery.

Nobel Prize in Physics press release: <https://www.nobelprize.org/uploads/2018/10/press-physics2018.pdf>