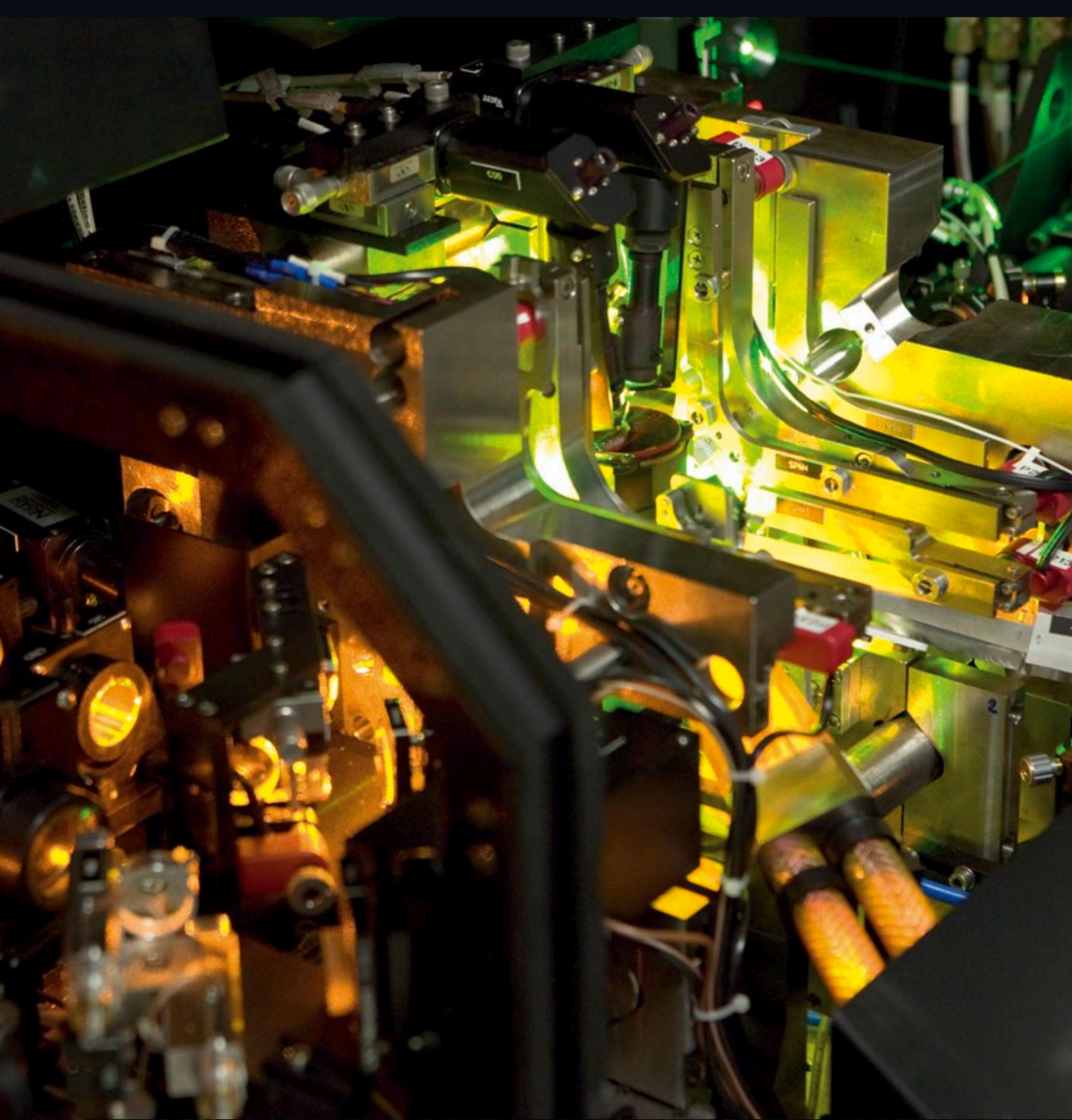


ESO is a leader in developing adaptive optics and laser guide star technologies to overcome the effect of the atmosphere on images from ground-based telescopes. The Very Large Telescope Laser Guide Star Facility was the first of its kind in the southern hemisphere.

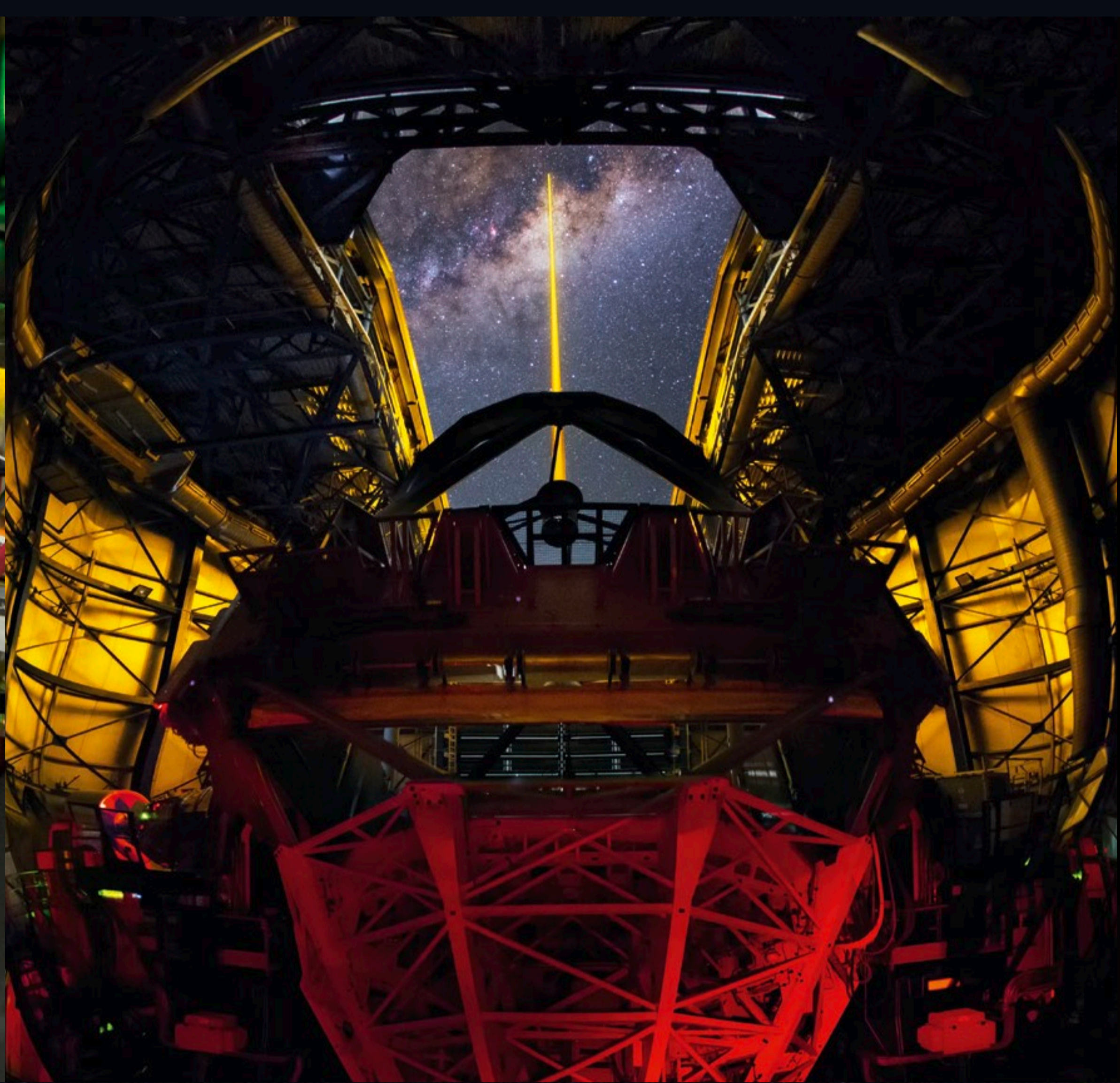
Outstanding scientific results have been obtained using ESO's adaptive optics facilities, such as the first direct observation of an exoplanet near a bright star and the characterisation of the black hole at the centre of the Milky Way.

The next generation of adaptive optics for the Very Large Telescope (VLT) will use several laser guide stars, and advanced adaptive optics systems are being produced to meet the challenges of the 39-metre European Extremely Large Telescope (E-ELT).

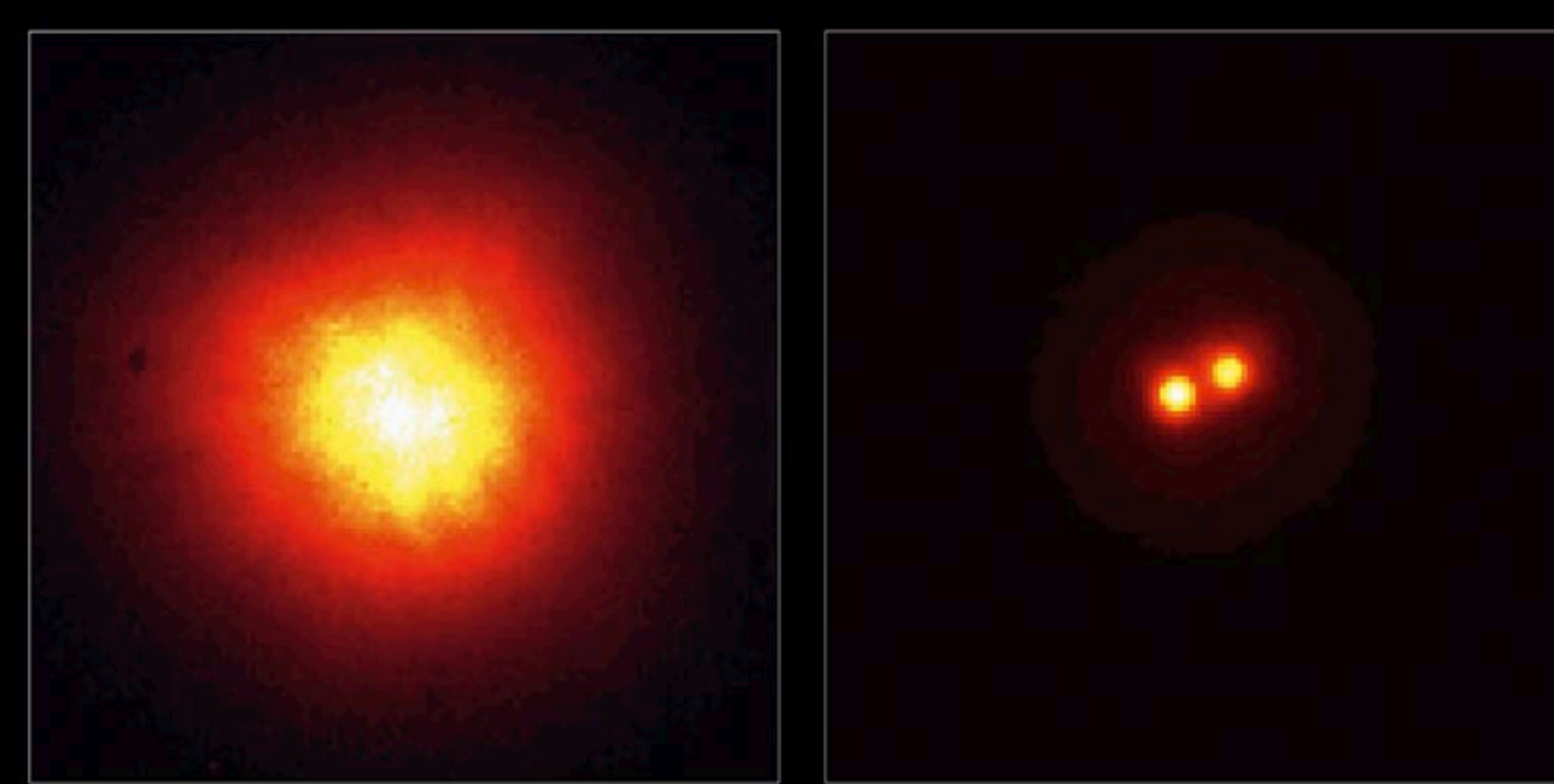
Significant recent progress has also opened the way to attaining a wider corrected field of view, which will certainly influence the design of future VLT and E-ELT adaptive optics facilities.



The laser guide star laboratory.  
Credit: ESO/H. H. Heyer



VLT's Unit Telescope 4 observing the centre of the Milky Way with adaptive optics assisted by the laser guide star.  
Credit: Y. Beletsky (LCO)/ESO



Images of the double star HIC 59206 obtained before (left) and after (right) the adaptive optics system was switched on.



[www.eso.org/adaptiveoptics](http://www.eso.org/adaptiveoptics)