Key words: Laser guide star facility, artificial star, adaptive optics

ESOcast Episode 106: **ChileChill 9: Lasers over Paranal**	
00:00 **[Visual starts]** **ESOcast intro** 1. This is the ESOcast! Cutting-edge science and life behind the scenes at ESO, the European Southern Observatory.	**00:00** ESOcast introduction
00:00 2. High on the mountaintop of Paranal in Chile, dusk falls quietly over **ESO's Very Large Telescope (VLT)**.	
00:00 3. In the darkness, **four bright lasers** shoot up into the sky like something **out of a science-fiction film**.	
00:00 4. These lasers help give astronomers **a better view of stars and galaxies far, far away**.	
00:00 5. Earth's atmosphere is the **biggest barrier** between ground-based telescopes and a sharp view of the night sky, because **turbulence causes stars to twinkle**.	
00:00 6. ESO built telescopes up here in the Atacama Desert to exploit some of the **clearest and darkest skies in the world**.	
00:00 7. **Still not enough**.	

00:00 8. Cue a technological **stroke of genius**: **adaptive optics.**	
00:00 9. Adaptive optics systems **use bright stars** to measure atmospheric conditions. This helps telescopes take **sharper images**.	
00:00 10. But sometimes, there are **no bright nearby stars**. So astronomers create them!	
00:00 11. A **powerful laser** can make sodium atoms high in the atmosphere glow. **Instant artificial star!**	
00:00 13. In April 2016, four new stars arrived in the Paranal skies: the **4 Laser Guide Star Facility** was installed at the VLT.	
00:00 14. Its four lasers are **the most powerful laser guide stars ever used in astronomy**.	
00:00 15. Creating multiple artificial stars gives a **better understanding of atmospheric conditions**, which leads to a better image.	
00:00 16. This clever system is **paving the way** for the adaptive optics system of **the Extremely Large Telescope**.	
00:00 **[Outro]**	*Produced by ESO, the European Southern Observatory.* *Reaching new heights in Astronomy.*