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# ***Large Mirrors and Telescopes***

**Xiaoliang Ma**  
**Bin Fan**  
**Yongjian Wan**  
**Adrian Russell**  
**Xiangang Luo**  
*Editors*

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Most telescopes, and all large telescopes, work by using curved mirrors to gather and focus light from the night sky. The first telescopes focused light by using pieces of curved, clear glass, called lenses. So why do we use mirrors today? Because mirrors are lighter, and they are easier than lenses to make perfectly smooth. The mirrors or lenses in a telescope are called the "optics." Really powerful telescopes can see very dim things and things that are really far away. To do that, the optics "be they mirrors or lenses" have to be really big. The bigger the mirrors or lenses, the more light they can collect. The large main mirror would dwarf the current generation of 26 to 33-foot (8 to 10-meter) telescopes and produce images about 10 times sharper than the Hubble Space Telescope. If fully funded, the telescope could find a home at the Las Campanas Observatory in La Serena, Chile and begin full operations by 2024. Thirty Meter Telescope (TMT). Thirty Meter Telescope. Another of the next-gen contenders for biggest optical telescope on Earth is the Thirty Meter Telescope. The Thirty Meter Telescope is slated to join the Keck Telescopes and other instruments on Mauna Kea in Hawaii and commence full operations by 2025-2030. Square Kilometer Array (SKA). SPDO/TDP/DRAO/Swinburne Astronomy Productions. Newer, larger telescopes are always needed to boost scientific progress, and the next generation of facilities - whether the 42m diameter optical-infrared Extremely Large Telescope, or the Square Kilometre Array of radio dishes - will represent a huge advance. We shall look at the science driving the need for such large telescopes, through history and to the present-day and beyond. Many scientific and engineering challenges are involved in the design and construction of the largest telescopes and their mirrors, and technological developments will be essential to their success. Professor Caroli Large telescopes of today are reflecting types, and this gives the instruments a number of advantages over the refracting varieties. For one, the reflecting material, typically aluminum, ensures no chromatic aberration, and this is likely due to the material's deposition on a polished surface. The telescope's large 120mm aperture improves contrast and resolution while also increasing image brightness compared to smaller 100mm or 80mm models. The telescope employs Celestron's performance-driven exclusive StarBright XLT multi-coating system, which boasts increased light transmission throughout the entire optical path using anti-reflection multicoated lenses, 4-element rare glass and highly-reflective multi coated mirrors. This list of the largest optical reflecting telescopes with objective diameters of 3.0 metres (120 in) or greater is sorted by aperture, which is a measure of the light-gathering power and resolution of a reflecting telescope. The mirrors themselves can be larger than the aperture, and some telescopes may use aperture synthesis through interferometry. Telescopes designed to be used as optical astronomical interferometers such as the Keck I and II used together as the Keck Interferometer (up to 85 m)