



DECam

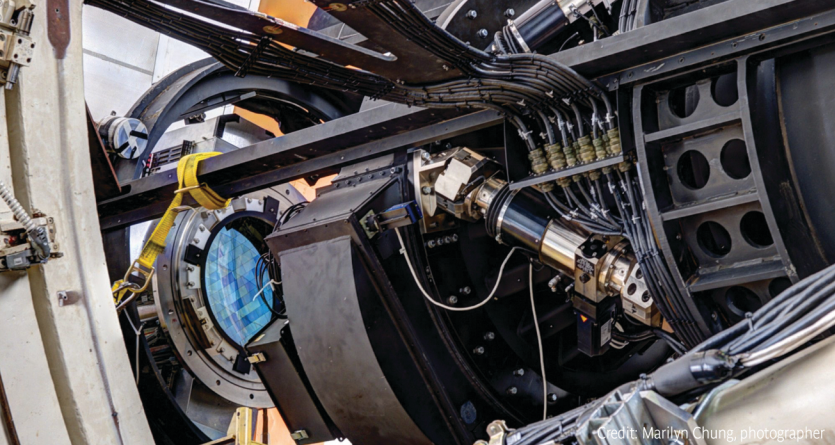
Dark
Energy
Camera



Credit: Marilyn Chung, photographer

National Optical Astronomy Observatory
www.noao.edu



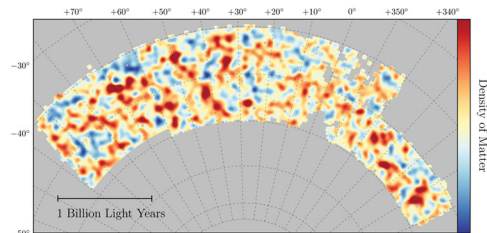


Credit: Marilyn Chung, photographer

DECam

DECam is a high-performance, wide-field CCD imaging camera mounted at the prime focus of the V.M. Blanco 4-m telescope at CTIO in Chile. The DECam imager incorporates 62 science CCDs totally 520 megapixels and generating images that cover 3 square degrees (2.2 degrees across) of the sky at 0.26 arcsecond/pixel resolution.

DECam was built to carry out the Dark Energy Survey (DES) and to provide the NOAO community with a state-of-the-art imaging facility in the southern hemisphere. Led by Fermilab, DES is a multi-national collaboration and has used 525 nights of time on the Blanco telescope over 5 years to carry out a deep, wide-area survey of 5000 square degrees of the southern Galactic cap, capturing images of 300 million galaxies up to billions of light-years away from Earth. The intent is to probe the origin of the accelerating universe and help uncover the nature of dark energy by measuring the 14 billion year history of cosmic expansion with high precision. More than 400 scientists from over 25 institutions in the United States, Spain, The United Kingdom, Brazil, Germany, Switzerland, and Australia are working on the project.



Map of dark matter made from gravitational lensing measurements of 26 million galaxies in the Dark Energy Survey.

DECam and Blanco are also used by the CTIO astronomical community to carry out a broad range of other scientific studies, from within our own planetary backyard to the far reaches of the universe. It has recently been used to discover 12 new moons in orbit around Jupiter, a plethora of asteroids, and two more dwarf planets far out in our solar system. Our Galaxy is being studied with a survey of its plane as visible from Chile, and via RR Lyra variable stars in its diffuse halo. Streams of stars stripped from clusters have been found, which facilitate study of the Galaxy's gravitational field. Additional surveys have studied our near neighbor galaxies, the Magellanic Clouds, and hitherto unknown dwarf galaxies have also been discovered.

