

# New Scientist

WEEKLY October 29 - November 4, 2022

ARE ARTIFICIAL SWEETENERS BAD FOR US?

STUNNING NEW JWST IMAGE

UNCOVERING THE GENETICS OF DYSLEXIA

SUPER-ACCURATE QUANTUM STOPWATCH

## CLIMATE ACTION: A PROGRESS REPORT

Ahead of the COP27 summit, what hope do we have of hitting the crucial targets?



## OCEAN WORLDS

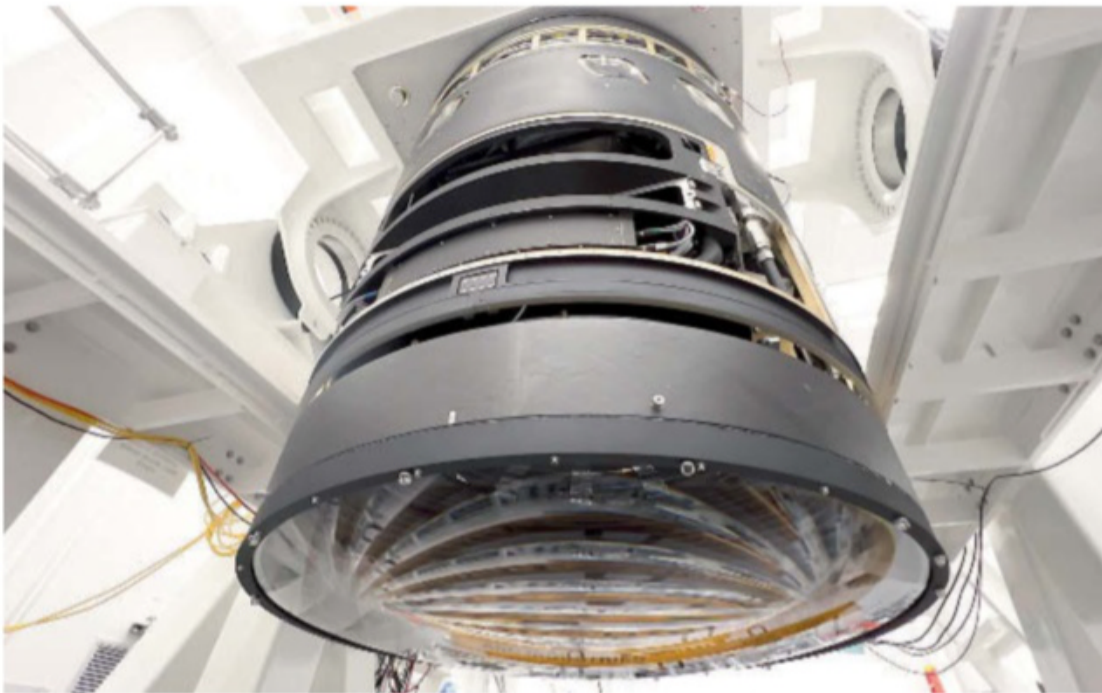
The search for exoplanets covered in water

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## Record breaker



Photographer **Jacqueline Ramseyer Orrell, SLAC National Accelerator Laboratory**

STANDING at 1.65 metres tall, the world's largest digital camera has been unveiled at SLAC National Accelerator Laboratory in California.

At the end of 2024, it will be installed at the Vera C. Rubin Observatory on the summit of Cerro Pachón in Chile. In its home in the Andes mountains, it will catalogue about 20 billion galaxies over the next 10 years as part of a project called the Legacy Survey of Space and Time (LSST). The 15 terabytes of data that the LSST Camera will collect every night will advance our knowledge of the universe, helping researchers unpack the nature of mysterious dark matter and better understand how galaxies are formed.

The LSST Camera works like any other digital camera, but it is much bigger. Its 189 sensors take in light emanating from objects like stars and convert it to electrical signals that can be turned into digital images. Each sensor is a square with sides 42 millimetres long and packs more pixels than the camera on an iPhone 13. In total, the camera has 3.2 gigapixels and will take images with a resolution high enough to see a golf ball from 24 kilometres away. Its biggest lens, with a diameter of 1.57 metres, is the largest of its kind ever made.

The top left image peers through the camera's outermost lens, revealing the blue "mosaic" arrangement of the 189 sensors. At right, the top and middle images show the camera with a cap covering the lens. The bottom images show the camera's 3-tonne body (left and right) and researchers wearing protective attire to avoid contaminating the camera's electronics (middle). ■

**Karmela Padavic-Callaghan**