

THE FIRST LASER

On 16 May 1960, Theodore H. Maiman operated the first functioning laser at Hughes Research Laboratories, Malibu, Calif., USA



In recognition of the laser's transformative role, 16 May was selected as the date for the annual International Day of Light

The Laser

Expanding our World

When Theodore Maiman successfully operated the first laser on 16 May 1960, it was impossible to imagine how integral lasers would one day become to our daily lives—from communications to medical research and from industry to entertainment, as described in this month's cover story on cutting-edge cinema (p. 28). Or how much the laser continues to expand our world—extending our reach from far out in space to the depths of the ocean.

Lasers are present everywhere in our world today

Psyche will transmit high-definition video from places like Mars to Earth

The subsea lidar scanning system will use a sub-nanosecond pulsed solid-state laser to generate underwater imagery

THE LASER TOMORROW

Deep-space communications

The Psyche mission (2022 launch) will test sophisticated new laser communication technology that encodes data in photons to communicate between a probe in deep space and Earth
NASA/JPL-Caltech

Tracking cancer

In 2015, researchers engineered human cells to emit a unique laser 'barcode'—a breakthrough that could one day help to track the spread of cancer cells throughout the body
Nano Lett. 15(8), 5647 (2015)

Sensing the Earth's rotation

Switched on in 2016, ROMY, a giant underground ring laser near Munich, Germany, will sense the rotation of Earth and tiny wobbles of its spin axis—helping calibrate GPS satellites and detect twisting motions from earthquakes
Ludwig Maximilian University of Munich

Measuring the ocean floor

3D at Depth is developing a lidar system capable of measuring the ocean floor at resolutions of 1 cm, providing new insights on the seafloor's ecology and geology
3D at Depth

Sources (left to right, top to bottom): Hughes Research Labs; ESA/ATG Medialab; Chandra X-Ray/NASA/JPL-Caltech; Getty Images; NASA/JPL-Caltech/Peter Rubin; Getty Images; Getty Images; M. Humar & S-H Yun; Getty Images; Getty Images; Geophysical Observatory; 3D at Depth; Getty Images; Getty Images Infographic by Alessia Kirkland