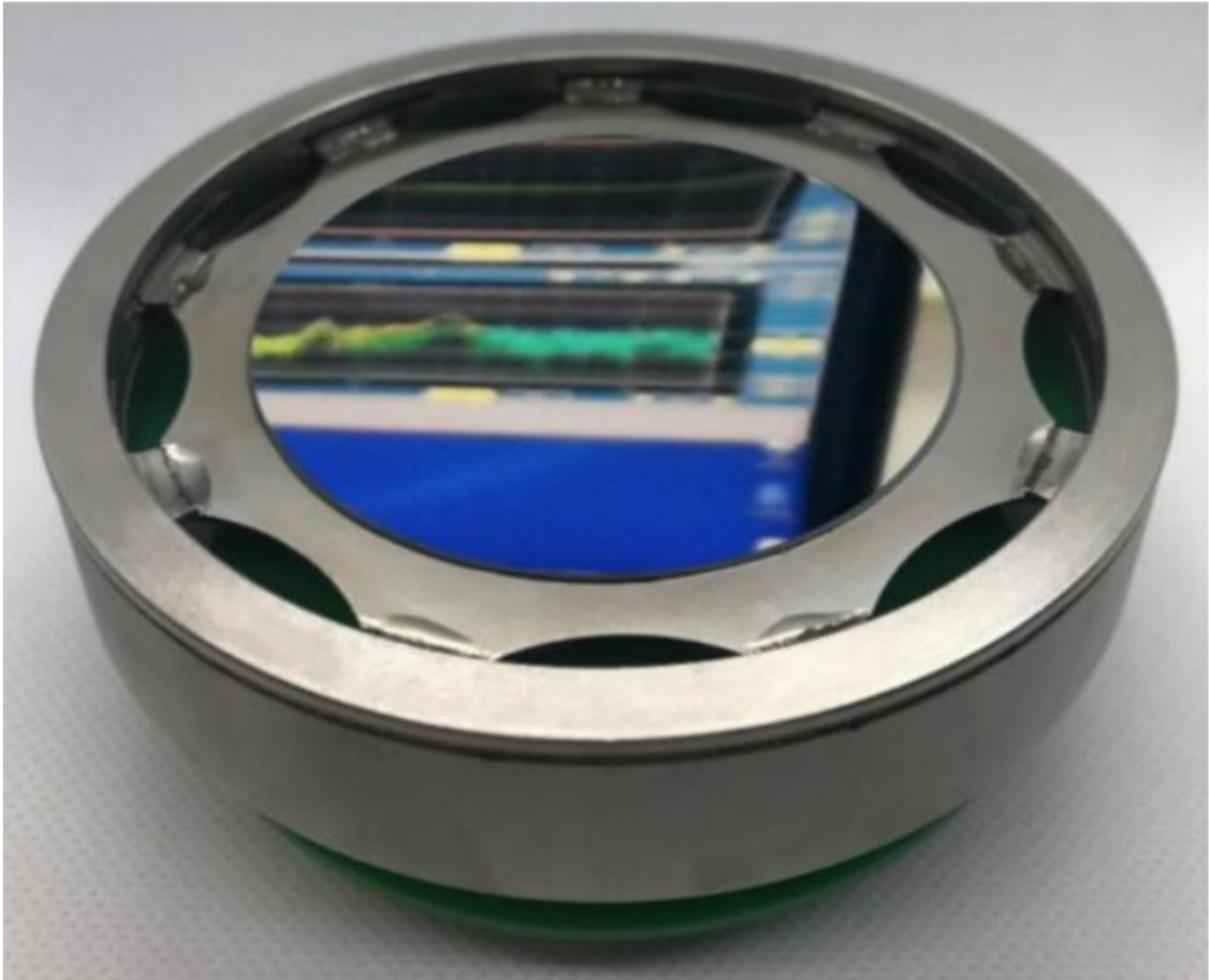


Image: Shape-shifting mirror

November 12 2020



Credit: European Space Agency

This bendable space mirror can have its shape shifted to compensate for

manufacturing or alignment errors within orbital telescopes or temperature-driven distortions.

Very large space telescopes are necessary to increase image resolution and sensitivity, whether for deep space exoplanet detection or sharpened views of the terrestrial environment. But large instruments will be harder to align and more sensitive to the absence of gravity and the environmental extremes of space. Being able to actively correct a [telescope mirror](#)'s shape offers a way forward.

Piezoelectric actuators placed under this prototype 50 mm mirror serve to deform its shape. The resulting change in [shape](#) is invisible to the [naked eye](#), around a thousandth of a millimetre or less, but it will still enable previously impossible missions to take place.

A set of ten mirrors were produced by OHB-System and the Muenster University of Applied Optics in Germany through ESA's General Support Technology Programme—readying promising technologies for space and commercial markets—and tested against launch stresses in ESA's Mechanical Systems Laboratory.

Provided by European Space Agency

Citation: Image: Shape-shifting mirror (2020, November 12) retrieved 24 June 2024 from <https://phys.org/news/2020-11-image-shape-shifting-mirror.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.