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## Press and Media Release

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**Optical filters from Materion Balzers Optics in Jena are playing a crucial role on board the EUCLID space telescope as it embarks on its mission to map the universe and search for dark matter.**

On July 1, 2023, the European Space Agency's EUCLID telescope will be launched from Cape Canaveral using a SpaceX Falcon 9 rocket. This ambitious mission aims to study dark matter and create a comprehensive map of the universe, utilizing time as the fourth dimension.

To analyze the telescope's captured images, two science instruments are employed: one operating in the Visible Spectral (VIS) region and the other in the Near-Infrared Spectral (NISP) region. Materion Balzers Optics, specifically Optics Balzers Jena GmbH, has developed and manufactured the optical coating for the primary optical components used in these instruments.

The VIS instrument incorporates a camera that accurately measures the shapes and positions of galaxies. The NISP instrument utilizes the redshift of the captured light to determine the distances of the galaxies. These instruments are pivotal in the mission's objective to deepen our understanding of dark matter and the vast expanse of the universe.

To facilitate the distribution of incident light to both instruments, a beam splitter with specific characteristics is required. The beam splitter must reflect visible light with minimal optical loss, allow infrared light to pass through without loss, and ensure the light wavefront remains undistorted. A coating was meticulously developed in Jena using magnetron sputtering technology over several years to meet these demanding requirements. All functionally critical properties were thoroughly demonstrated not only at room temperature but also at the operating temperature of -170°C.

One of the standout features of the EUCLID telescope's NISP spectrometer is its exceptionally large field of view for an infrared instrument in space. This impressive accomplishment was made possible in part by Materion Balzers Optics in Jena, which provided four distinct optical filters. These filters play a vital role in analyzing the light emitted from deep space, enabling the telescope to carry out its groundbreaking mission.

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Materion Balzers Optics has a long-standing tradition of innovation and excellence, spanning more than 70 years. As a leading industry partner, they specialize in the development and production of coated optical components and subassemblies. Their expertise and dedication to advancing optical technology make them an invaluable contributor to space exploration and scientific endeavors.

More information:

<https://www.materionbalzersoptics.com/en/markets/laser-space-und-defence/space/>

Materion Balzers Optics is a global leader in optical thin film coating solutions. We are the preferred partner for providing innovative optical coatings and solutions for over 70 years. As a high-tech company with 5 production sites worldwide, our focus is on a variety of markets such as Automotive, Consumer, Defense, Industry, Life Science, Lighting, Semiconductors and Space.

<https://www.materionbalzersoptics.com>

Pictures EUCLID Beamsplitter:



