LOCKHEED MARTIN IS HELPING NASA BEGIN THE HUNT FOR DARK ENERGY

News / Manufacturer

Lockheed Martin is helping NASA begin the hunt for dark energy, a mysterious force powering the universe's accelerating expansion. An instrument assembly the company is developing, if selected by NASA for production, will be the core of the primary scientific instrument aboard the Wide Field Infrared Survey Telescope (WFIRST), whose mission aims to uncover hundreds of millions more galaxies and reveal the physics that shapes them.

Scientists and engineers recently began work developing the Wide-Field Optical-Mechanical Assembly (WOMA) for WFIRST, NASA's newest astrophysics telescope program. WOMA comprises the major portion of scientific components on one of two instruments on the telescope.

NASA chose Lockheed Martin's Advanced Technology Center (ATC) in Palo Alto to advance from an earlier study into the formulation phase. WOMA uses similar approaches to the Near Infrared Camera (NIRCam), which the ATC built as the primary optical instrument for NASA's James Webb Space Telescope.

"Lockheed Martin scientists achieved groundbreaking results with NIRCam's precision and sensitivity," said Jeff Vanden Beukel, WOMA program manager at Lockheed Martin. "There's no time to lose as we support a fast-paced schedule, and our experience with NIRCam's precision

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optics positions our WOMA design to be capable, producible and on budget.”

Scientists and engineers are collaborating to design optical systems, mechanisms, structure, electronics and thermal control components. Similar to NIRCam, the Wide-Field Instrument on WFIRST will be a powerful optical payload. However, WFIRST will have a massive focal plane array, 200 times larger than NIRCam, to capture what some liken to panoramic images of the star field.

In addition to dark energy research, WOMA will also use microlensing to complete the census of known exoplanets. Microlensing takes advantage of brief distortions in space to reveal new planets around distant stars, and WFIRST’s wide field of view will allow scientists to monitor 200 million stars every 15 minutes for more than a year. When NASA launches WFIRST, it will work in concert with other observatories to jointly research new places and forces in our universe.

NASA plans to select a winning design next year for production, and WFIRST is expected to launch in the mid-2020s.

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