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THE MILO SPACE SCIENCE INSTITUTE: A NEW APPROACH TO SPACE SCIENCE.

**Abstract**

The MILO Space Science Institute ("MILO") is a non-profit research collaborative led by Arizona State University (ASU), with support from Lockheed Martin and GEOshare, a subsidiary of Lockheed Martin. MILO was founded in 2018 to enable more scientists, engineers, and students, including those with little current experience, to design, develop, and conduct deep space robotic missions with high science return. One of MILO's primary goals is to build a global consortium of members to self-fund science-focused deep space missions, and to develop each member's local space science and engineering workforce. MILO believes in (1) building up the local space ecosystems of its members through access to operational missions and hands-on development, (2) supporting space science activities in its member's respective regions, and bringing benefits provided by space science missions to strengthen a culture of innovation, educate the workforce, and foster entrepreneurship that encourages new products, jobs, and companies based on innovations in space science.

To stimulate a culture of innovation, MILO works with members to identify a mission theme. The mission theme defines technology advancements for the space mission. It also guides investments within the partner country in training and entrepreneurship. Project-based learning, principle investigator training and entrepreneurship programs transfer knowledge and energize the startup community to create new applications and companies serving relevant commercial markets. It is anticipated that the innovation ecosystem will produce sustainable economic growth within the member's region.

The MILO Institute program elements are designed to leverage the inspirational quality of space exploration to engage the members in a program that is envisioned to: • Create a call to action for creatives and innovators across the nation to advance concepts that resolve grand challenges; • Facilitate knowledge transfer and produce skilled professionals; • Encourage collaboration between university teams, industry, and government; • Architect innovation infrastructures to accelerate technology development; and • Create new opportunities for all people to engage in a thriving, innovation ecosystem.

The MILO Institute takes a new approach to advancing great space science. Through a consortium model, universities, industries and space agencies around the globe are able to become members of the institute. They participate in space missions, enhance their workforce, and grow their innovation ecosystems. The Institute makes space science more affordable, and provides a myriad of teaming opportunities