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NASA'S DEVELOPMENT OF ADVANCED SPACE SUITS FOR LUNAR EXPLORATION

**Abstract**

Significant work has been completed recently at NASA's Johnson Space Center in the Space Suit and Crew Survival Systems Branch to design and mature an advanced exploration EVA (Extra-Vehicular Activity) architecture. This effort culminated in the xEMU (eXploration Extra-vehicular Mobility Unit) space suit, which was completed in 2022 and tested extensively through 2023, including human performance, cycle life performance and thermal vacuum testing. An overview of the xEMU design and test campaign is provided, as well as its value as the government reference design supporting the transition to EVA commercial services for the Artemis program. Lastly, a development roadmap is discussed which outlines NASA's identified strategy to enable the next generation of exploration EVA hardware for sustaining-class Lunar and Mars missions.