



EMA Supports NASA Artemis Missions

Electro Magnetic Applications, Inc. (EMA) is working with the NASA Johnson Space Center to ensure Artemis spacesuits can safely operate in the harsh lunar environment by reducing charging-related risks.

The Challenge

Artemis spacesuits must withstand:

- Electrical charging and electrostatic discharge (ESD) from the lunar plasma environment
- Triboelectrification caused by interactions with lunar regolith
- Multi-layer materials and embedded electronics critical to life support and communications

The Approach

To build confidence in spacesuit performance, EMA pairs advanced physics-based simulation with focused laboratory testing, including:

- Electromagnetic charging simulation using Ansys Charge Plus
- Evaluation of spacesuit materials, layered stack-ups, and representative suit features
- Test and validation activities at EMA's Space Environment and Radiation Effects (SERE) Lab
- Controlled experiments to quantify dust-driven triboelectric charging effects

The Impact

The integrated simulation-and-test workflow enables NASA to:

- Identify worst-case lunar charging scenarios
- Evaluate key design trade-offs earlier
- Focus validation efforts where they matter most
- Strengthen confidence in astronaut safety and mission success

