

Spacecraft Photovoltaic Solar Panels



Overview

For almost 50 years, the National Renewable Energy Laboratory (NREL) has developed solar cells to power satellites and spacecraft. Today, we are working to improve the durability, performance, and affordability of several photovoltaic (PV) materials for space and power.

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Space Solar Power Project

Our research solves the fundamental challenges associated with implementing space solar by integrating ultralight and shape accurate structures with high

[Space photovoltaics for extreme high-temperature missions](#)

Over the years since the first solar cells were sent into space on Vanguard 1 in 1958, space solar array technology has advanced to make photovoltaic cells resistant to these degradation mechanisms.



Space-Based Solar Power

Increasing the efficiency of solar cells decreases the size and mass of a space solar power system required to create the same output power. This decrease in size affects both hardware development

SpaceX

SpaceX designs, manufactures and launches advanced rockets and spacecraft. The company was founded in 2002 to revolutionize space technology, with the ultimate goal of enabling



[Flexible Silicon Photovoltaics: A Breakthrough in Space](#)

New advancements in silicon photovoltaics for



[List of Spacecraft: Satellites, Probes & Space Missions](#)

Explore our definitive list of spacecraft, including satellites, planetary probes, crewed vehicles, and deep-space missions. Discover detailed information on various spacecraft, their designs, and their historic



[Artemis II crew describes life aboard Orion spacecraft on historic](#)

The Artemis II crew launched from Kennedy Space Center aboard Orion, embarking on NASA's first crewed moon mission since the Apollo era of the 1970s.



space are unlocking radiation hardened solar power options with lower costs, higher manufacturing scale, and



Spacecraft

A spacecraft is a vehicle that is designed to fly and operate in outer space. Spacecraft are used for a variety of purposes, including communications, Earth observation, meteorology, navigation, space



[Spacecraft , Definition, Types, & Facts , Britannica](#)

Spacecraft is a vehicle designed to operate, with or without a crew, in a controlled flight pattern above Earth's lower atmosphere. Most spacecraft are not self-propelled; they depend on the

Launches & Spacecraft Coverage , Space

Isar Aerospace's Spectrum rocket will launch from Norway on April 9, in an attempt to become the first vehicle ever to reach orbit from European soil. An Atlas V launched 29 of Amazon's



[Artemis II live updates: NASA gives final mission status briefing](#)

The Artemis II crew spoke to reporters from aboard the Orion spacecraft as they near the end of their historic lunar mission. Cmdr. Reid Wiseman described one of the mission's most

Design Considerations for a Spacecraft Solar Array

Selecting a spacecraft power source is a trade-off between size, weight, power, complexity, cost, technology readiness, and reliability. Within that



Space-Based Photovoltaics

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Solar Solutions , Rocket Lab

Rocket Lab's space qualified solar panel arrays meet the rigorous demands of space, delivering reliable and efficient power solutions for a wide variety of



Spacecraft



Spacecraft coverage from Scientific American, featuring news and articles about advances in the field.

[Artemis II tracker. Latest location of NASA's milestone mission](#)

NASA gave the go-ahead for the last major engine burn, officially moving the Orion spacecraft out of Earth orbit. The crew ignited Orion's main engine to build speed for the



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