

What is the current design of Caltech's space solar power project?

Caltech's vision for a constellation of sail-like solar panels that unfurl once they reach orbit is the current design, according to Sergio Pellegrino, Joyce and Kent Kresa Professor of Aerospace and Civil Engineering and co-director of SSPP. The flexible power transmission arrays are essential to this design.

What is the goal of the Space Solar Power Project (SSPP)?

The Space Solar Power Project (SSPP) aims to harvest solar power in space and transmit it to the Earth's surface. Wireless power transfer was demonstrated on March 3 by MAPLE, one of three key technologies being tested by the Space Solar Power Demonstrator (SSPD-1), the first space-borne prototype from Caltech's Space Solar Power Project (SSPP).

What is the space-based solar power project (SSPP)?

Through the Space-based Solar Power Project (SSPP), a team of Caltech researchers is working to deploy a constellation of modular spacecraft that collect sunlight, transform it into electricity, then wirelessly transmit that electricity wherever it is needed--including to places that currently have no access to reliable power.

Who financed a space-based solar power project?

The Northrop Grumman Corporation provided funding for initial feasibility studies. Atwater, Hajimiri, and Pellegrino discussed their progress--and the transformational potential of space-based solar power--as the project nears a significant milestone: a test launch of prototypes into space in December 2022.

What has the space solar power prototype demonstrated?

A space solar power prototype... has demonstrated its ability to wirelessly transmit power in space and to beam detectable power to Earth for the first time. It was launched into orbit in January and is operational.

Why did Bren join Caltech?

Intrigued by the potential for space solar power, Bren approached Caltech's then-president Jean-Lou Chameau to discuss the creation of a space-based solar power research project. In 2013, Bren and his wife, Brigitte Bren, a Caltech trustee, agreed to make the donation to fund the project.

The development and research of the energy indicators of a solar power plant based on a block of solar panels of the Era-370W-24V-Mono type with a capacity of 110 kW and a solar hybrid inverter ...

Space-based solar power is having a first test: a satellite experiment by the California Institute of Technology, launched on a SpaceX Falcon 9 rocket to transmit photovoltaic electricity by ...

The Caltech Space Solar Power Demonstration One Mission, 2022 IEEE International Conference on Wireless for Space and Extreme Environments (WiSEE). ... Trajectory design of a ...

The orbiting power stations are based on the Caltech Space Solar Power Project architecture. The constellation consists of multiple power stations in a shared equatorial MEO each transmitting to a ...

SSPD-1 was launched in January 2023 as part of the California Institute of Technology's (Caltech) Space Solar Power Project (SSPP), the primary goal of which is to harvest solar power in space and ...

first transmission of solar power to Earth from a space-based device On a rooftop at Caltech in Pasadena, California, the receiver (right) that on May 22, 2023, detected the first transmission of solar power to Earth from a space-based ...

Ali Hajimiri, co-director of the Caltech Space-Based Solar Power Project. (Image credit: Caltech/Francesca Forquet) On May 22, 2023, the payoff from SSPD-1 literally hit the roof atop Caltech's ...

solar power station with the goal of producing a space vehicle capable of generating approximately 900kW of RF power from a flexible, foldable and rollable 60 m x 60 ...

Wireless power transfer was demonstrated on March 3 by MAPLE, one of three key technologies being tested by the Space Solar Power Demonstrator (SSPD-1), the first space-borne prototype from Caltech's Space ...

A sponsored research agreement with Northrop Grumman Corporation will provide Caltech up to \$17.5 million over three years for the development of the Space Solar Power Initiative (SSPI), to enable a space ...

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The 10-year research program began in 2013 and aims to create a global supply of affordable, renewable, clean energy

Donald Bren, chairman of the Irvine Company and life member of the Caltech Board of Trustees, and his wife, Brigitte, who is a Caltech trustee, make a \$100 million investment that helps form the Space-based Solar Power Project ...

A Caltech team is celebrating the world's first space-based wireless power transmission, and the first time detectable levels of power have been beamed down to Earth. The Space Solar Power Project ...

In January 2023, the Caltech Space Solar Power Project (SSPP) is poised to launch into orbit a prototype, dubbed the Space Solar Power Demonstrator (SSPD), which will test several key ...

The SSPI will develop the scientific and technological innovations necessary to enable a space-based solar power system--consisting of ultralight, high-efficiency photovoltaics, a phased-array system to produce and distribute ...

Bren Professor of Electrical Engineering and Medical Engineering; Co-Director, Space-Based Solar Power Project. Professor Sergio Pellegrino . Joyce and Kent Kresa Professor ...

Caltech's Space Solar Power Demonstrator carried 32 different types of PV cells to assess those best suited to the space environment. ... that could offer a low cost approach while delivering the weight and efficiency ...

Space Solar Power. Space-based solar power is an audacious concept for future baseload renewable energy generation by harvesting sunlight using a large-scale photovoltaic array in ...

In collaboration with the Caltech Space Solar Power Project, our research investigates concepts of operations for planar space solar power satellites. ... Trajectory design of a spacecraft formation for space-based solar power using ...

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