

What is cable-supported photovoltaic (PV)?

Cable-supported photovoltaic (PV) modules have been proposed to replace traditional beam-supported PV modules. The new system uses suspension cables to bear the loads of the PV modules and therefore has the characteristics of a long span, light weight, strong load capacity, and adaptability to complex terrains.

What are the characteristics of a cable-supported photovoltaic system?

Long span, light weight, strong load capacity, and adaptability to complex terrains. The nonlinear stiffness of the new cable-supported photovoltaic system is revealed. The failure mode of the new structure is discussed in detail. Dynamic characteristics and bearing capacity of the new structure are investigated.

What is a PV support structure?

Support structures are the foundation of PV modules and directly affect the operational safety and construction investment of PV power plants. A good PV support structure can significantly reduce construction and maintenance costs. In addition, PV modules are susceptible to turbulence and wind gusts, so wind load is the control load of PV modules.

What is a supporting cable structure for PV modules?

Czaloun (2018) proposed a supporting cable structure for PV modules, which reduces the foundation to only four columns and four fundamentals. These systems have the advantages of light weight, strong bearing capacity, large span, low cost, less steel consumption and applicability to complex terrain.

What are the characteristics of a new cable-supported PV system?

Dynamic characteristics As the new cable-supported PV system has the characteristics of a smaller mass and greater flexibility, vibration suppression is one of the key factors of the new structures. Therefore, the mode shapes and modal frequencies are important parameters in the structural design of the new cable-supported PV system.

Can a cable-supported PV system reduce wind-induced vibration?

Recently, the authors (He et al., 2020) proposed a new cable-supported PV system by adding an additional cable and several triangle brackets to form an inverted arch and reduce the deflection of the PV modules and studied the wind-induced vibration and its suppression through a series of wind tunnel tests.

The suspension cable structure with a small rise-span ratio (less than  $1/30$ ) is adopted in the flexible photovoltaic support, and it has strong geometric nonlinearity. Based on ...

The lower load-bearing cables of the double-layer cable truss flexible photovoltaic support are highly susceptible to relaxation under wind suction loads, and, by comparing the optimization ...

# Cable photovoltaic truss support

The cable-suspended PV system has gained increasing popularity due to its large span and good site adaptability. However, this structure is quite sensitive to wind actions, and wind-induced module damage and ...

of the three-dimensional cable-truss flexible photovoltaic support system is vertical antisymmetric half-wave vibration, the second mode is vertical symmetric vibration of 1/3 wave, the third ...

The wind-induced vibration response of a new type of cable-truss support photovoltaic module system with a span of 35m is studied through the aeroelastic wind tunnel test. Firstly, the ...

Semantic Scholar extracted view of "Experimental study on critical wind velocity of a 33-meter-span flexible photovoltaic support structure and its mitigation" by Jiaqi Liu et al. ...

The present invention relates to photovoltaic generation and transmission & distribution electro-technical field, and in particular to one kind is without steel construction overhead type ...

In order to respond to the national goal of "carbon neutralization" and make more rational and effective use of photovoltaic resources, combined with the actual photovoltaic substation ...

Flexible photovoltaic support of cable truss CN217307586U (en) 2022-08-26: Flexible photovoltaic support CN111155696A (en) 2020-05-15: Rib-ring-shaped multi-strut string-supported dome ...

There are, however, few studies concerned with the aeroelastic vibration of PV structures under the tension cable support system. ... Investigation of turbulence effects on the ...

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