

Bending of photovoltaic bracket

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 factors affect the bearing capacity of new cable-supported photovoltaic modules?

The pretension and diameter of the cables are the most important factors of the ultimate bearing capacity of the new cable-supported PV system, while the tilt angle and row spacing have little effect on the mechanical characteristics of the new type of cable-supported photovoltaic modules.

What is a new cable-supported photovoltaic system?

A new cable-supported photovoltaic system is proposed. 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.

How is a PV module fixed?

The PV module is fixed on Cables 1 and 2 by using back-fasteners. The maximum stress is calculated as $6.60 \times 10^7 \text{ N/m}^2$ at the four nodes connecting the load-bearing cables and the PV module. Similar results are observed in Case 180°, as shown in Fig. 13 (b).

What is the tilt angle of PV modules?

According to Eq. (4), in the present study, the tilt angle of PV modules α is set to range from 0° to 30°; with increments of 5°. The cable forces are constant $H_1 = H_2 = 30 \text{ kN}$ and $H_3 = 18 \text{ kN}$. In addition, the row spacing is set as $D = 2.98 \text{ m}$. The self-weight of the PV modules is mainly borne by the pretension of Cable 3.

Does a cable-supported PV system have aeroelastic instability?

Tamura et al., 2015a, Tamura et al., 2015b experimentally investigated the aeroelastic instability of a cable-supported PV system using a scaled model and concluded that the vibration is closely related to the sag, wind speed and wind direction.

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Currently, the photovoltaic (PV) panels widely manufactured on market are composed of stiff front and back layers and the solar cells embedded in a soft polymeric interlayer. The wind and ...



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Double-in-roll c-shaped steel photovoltaic bracket is mainly applicable to the ground photovoltaic power station and concrete flat-roof photovoltaic power station. The bracket has a strong adjustable ability, high structural strength, ...

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