

What are the dynamic characteristics of photovoltaic support systems?

Key findings are as follows. Dynamic characteristics of tracking photovoltaic support systems obtained through field modal testing at various inclinations, revealing three torsional modes within the 2.9-5.0 Hz frequency range, accompanied by relatively small modal damping ratios ranging from 1.07 % to 2.99 %.

Can photovoltaic support systems track wind pressure and pulsation?

Currently, most existing literature on tracking photovoltaic support systems mainly focuses on wind tunnel experiments and numerical simulations regarding wind pressure and pulsation characteristics. There is limited research that utilizes field modal testing to obtain dynamic characteristics.

Can remote sensing derived data be used for large-scale photovoltaic power stations?

Scientific Data 11, Article number: 198 (2024) Cite this article We provide a remote sensing derived dataset for large-scale ground-mounted photovoltaic (PV) power stations in China of 2020, which has high spatial resolution of 10 meters.

Is solar photovoltaics ready to power a sustainable future?

Victoria, M. et al. Solar photovoltaics is ready to power a sustainable future. Joule 6, 1041-1056 (2021).
Dunnett, S. et al. Harmonised global datasets of wind and solar farm locations and power. Sci. Data 7, 130 (2020).
Helveston, J. P., He, G. & Davidson, M. R. Quantifying the cost savings of global solar photovoltaic supply chains.

How stiff is a tracking photovoltaic support system?

Because the support structure of the tracking photovoltaic support system has a long extension length and the components are D-shaped hollow steel pipes, the overall stiffness of the structure was found to be low, and the first three natural frequencies were between 2.934 and 4.921.

Does inclination affect the natural frequency of photovoltaic support systems?

Moreover, the variations in inclination of tracking photovoltaic support systems had minimal impact on their natural frequencies, as the increase in natural frequency magnitude across different inclinations remained below 1.5 %. Additionally, consistently low modal damping ratios were measured, ranging from 1.07 % to 2.99 %.

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