

Butterfly type energy storage collector

What is a butterfly solar concentrator?

The V-shaped design of the butterfly is therefore strikingly similar to the V-trough solar concentrator which uses mirrored side walls to focus light towards a small area of photovoltaic material 3, 26 (Fig. 1d) thereby increasing the output power of any solar cell to which it is attached 4, 27. White butterflies as solar concentrators.

Does a white butterfly mimic a Photovoltaic concentrator?

To improve both the gathering of thermal and photovoltaic energy from the sun we have examined the concept of biomimicry in white butterflies of the family Pieridae. We tested the hypothesis that the V-shaped posture of basking white butterflies mimics the V-trough concentrator which is designed to increase solar input to photovoltaic cells.

Can biomimicry improve photovoltaic energy harvesting in white butterflies?

Man's harvesting of photovoltaic energy requires the deployment of extensive arrays of solar panels. To improve both the gathering of thermal and photovoltaic energy from the sun we have examined the concept of biomimicry in white butterflies of the family Pieridae.

Are flywheels a good alternative to battery energy storage?

Khodadoost et al. suggest that flywheels are favorable options for integration with wind and PV systems compared to battery energy storage systems since variations in their output power occur in a short period of time.

Which energy storage system is best for wind energy storage?

Mousavi et al. suggest flywheel energy storage systems as the best systems for wind energy storage due to their quick response times and favorable dynamics. They provide several examples of wind-flywheel pairing studies and their control strategies to achieve smooth power control.

Is thermochemical energy storage a good option for long-term storage applications?

Since energy losses during storage are smaller for thermochemical energy storage than for sensible or latent TES, thermochemical energy storage has good potential for long-term storage applications. Thermochemical energy storage systems nonetheless face various challenges before they can achieve efficient operation.

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