TITLE

Diffuse-Light-Collecting Integrated Concentrator Lenses for Photovoltaics

CASE NUMBER

C16010

VALUE PROPOSITION

» The concentrator lenses are flexible and customizable for various photovoltaic devices.
» The concentrator lenses reduce the necessity for external equipment for tracking and adjustment

UNMET NEED

» Solar energy generation is projected to increase to 48% of total U.S. renewable generation by 2050.
» Solar concentrators can be used with high-efficiency solar cells to increase power generation.
» Current concentrators are only efficient within a small angular range and require external systems to move the solar panel to track the sun.
» A new method of maintaining concentrator efficacy while reducing external additions is needed.

TECHNICAL OVERVIEW

» Inventors at Johns Hopkins have developed an improved design based on the current DTIRCs.
» By implementing a Fresnel-lens like microstructure on the surface of the concentrator, they have been able to simultaneously increase the acceptance angle (from 22.5° to 27°) and enhance the concentration ratio (from ~10 to ~11).
» These increases reduce the necessity for external equipment for tracking and adjustment, thereby making them flexible and customizable for various photovoltaic devices.

STAGE OF DEVELOPMENT

» A preliminary version of the system has been tested.

ASSOCIATED INVENTORS

Electrical and Computer Engineering
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TECHNOLOGY CLASSIFICATION

» Energy
» Engineering

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ASSOCIATED REPORTS OF INVENTION (ROIs) AND INTELLECTUAL PROPERTY (IP) FILING NUMBERS

ROI#	TITLE	STATUS	PRIORITY DATE	IP FILING NUMBERS
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