Skysong Innovations
Advancing the Arizona State University Knowledge Enterprise

1475 N. Scottsdale Road, Suite 200
Scottsdale, AZ 85287-3538
Phone: 480 884 1996 Fax: 480 884 1984

Case ID:M20-102P^
Published: 8/14/2020

Inventors

Tyler Blundo
Christiana Honsberg
Stephen Goodnick
Richard King
Nicholas Irvin

Contact

Shen Yan
shen.yan@skysonginnovations.com

Skylights with Integrated Vertical Photovoltaics and Refractive Light-Steering Optics

Invention Description

Researchers at Arizona State University have developed a skylight design that integrates low-cost refractive glass elements to steer light towards vertically oriented photovoltaics. The vertical orientation avoids blocking of sunlight into the skylight while the suspended or mounted glass optics direct radiation to the cells for electricity generation. These optics simultaneously allow diffuse radiation to pass through for improved daylighting with reduced heat gain and reduced glare.

Potential Applications

- Energy-efficient lighting modules
- Skylights

Benefits and Advantages

- Can be retrofitted in existing skylights
- Decreases energy costs by providing natural light and generating electricity
- Reduces heat gain
- Light-steering optics channel direct sunlight toward solar cells
- Optics pass diffuse sunlight into living spaces for more a pleasant, reduced-glare environment

Faculty Profile of Professor Christiana Honsberg