LUMINESCENT SOLAR CONCENTRATORS FROM FILMOGENIC POLYMERIC AQUEOUS DISPERSIONS

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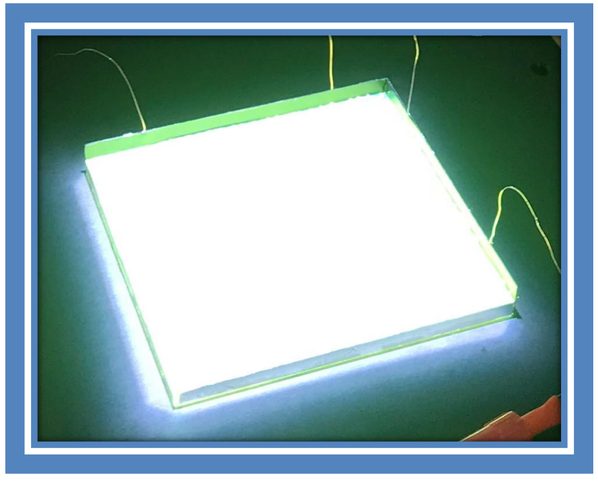
Invention

The patented technology is an innovative Luminescent Solar Concentrator (LSC), created from filmogenic aqueous dispersions containing fluorophores with high quantum yield.

The studies carried out allowed to perform a screening of various mixtures containing specific polymeric resins and appropriate fluorophores, in order to obtain an optimal aqueous dispersion for a process of light absorption and subsequent emission, at high intensity, of fluorescence.

This dispersion, once deposited on a transparent surface (window glass, terraces, etc.), creates a film of polymeric material highly emissive and with the same refractive index of the glass, capable of **concentrating light radiation on the edges, towards the photovoltaic cell (PV), and produce electricity**.

Drawings
& pictures



Industrial applications

SECTOR

- Renewable Energies

POSSIBLE APPLICATIONS

- Production of colored and highly transparent glass or plastic sheets, able to absorb UV rays and consequently produce electricity;
- Production of glazing and windows, which maintain the same refractive index as glass;
- Manufacturing Nearly Zero Energy Buildings;
- Creation of architectural structures capable of self-powering, following the absorption of solar energy.

Possible developments

The design of new luminescent solar concentrators LSC, useful to maximize the diffusion of photovoltaics in urban contexts, is the main objective of the ongoing studies, both for their considerable environmental impact and for the adaptability of the panels (transparent and colored) that increase the visual comfort of architectural structures.

Objectives currently under investigation are scaling up the size of the prototype and validation of prototypes previously developed in the laboratory.

The research team is interested in industrial partnering in order to increase the technological readiness level of the invention and to consider a possible licensing of the patented technology.

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