Photocatalyst Suspension Reactor for Solar Water Splitting

Tech ID: 34299 / UC Case 2025-788-0

BRIEF DESCRIPTION

A novel reactor design that enables cost-effective green hydrogen production via solar water splitting, targeting $1/kg-H2 at scale.

FULL DESCRIPTION

This innovative reactor uses a simplified single-compartment photocatalytic design with integrated galvano-catalytic hydrogen compression and reduced use of plastic materials, significantly lowering capital costs and enabling large-scale, clean hydrogen fuel production without CO2 emissions.

SUGGESTED USES

- Green hydrogen production for renewable energy storage.
- Hydrogen fuel supply for transportation sectors.
- Chemical feedstock production including ammonia synthesis.
- Large-scale sustainable energy infrastructure projects.

ADVANTAGES

- Cost reduction: Minimizes plastic components and integrates hydrogen compression to meet DOE green hydrogen cost targets.
- Simplified design: Single-compartment system using proven components for reliable, easier operation.
- Clean production: Generates hydrogen without CO2 by-products.

PATENT STATUS

Country	Type	Number	Dated	Case
Patent Cooperation Treaty	Published Application	WO2026059721A1	03/19/2026	2025-788

Additional Patent Pending

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OTHER INFORMATION

CATEGORIZED AS

- **Energy**
- Other

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