PureLite Reactor™

LED-based batch photoreactor for advanced oxidation processes

"Light-Powered Precision."

Technology

The PureLite Reactor™ provides a highly efficient and customisable platform for various applications. Its energy-efficient LED light sources, advanced control systems, and versatile design give researchers precise control over photochemical reactions, making it a vital tool in environmental science, water treatment, photocatalysis, and chemical synthesis. The reactor's advanced features, such as flow-through systems, automation, and real-time monitoring, improve both the accuracy and efficiency of experiments, enabling a deeper understanding of complex chemical processes and supporting the development of sustainable technologies.

Market need

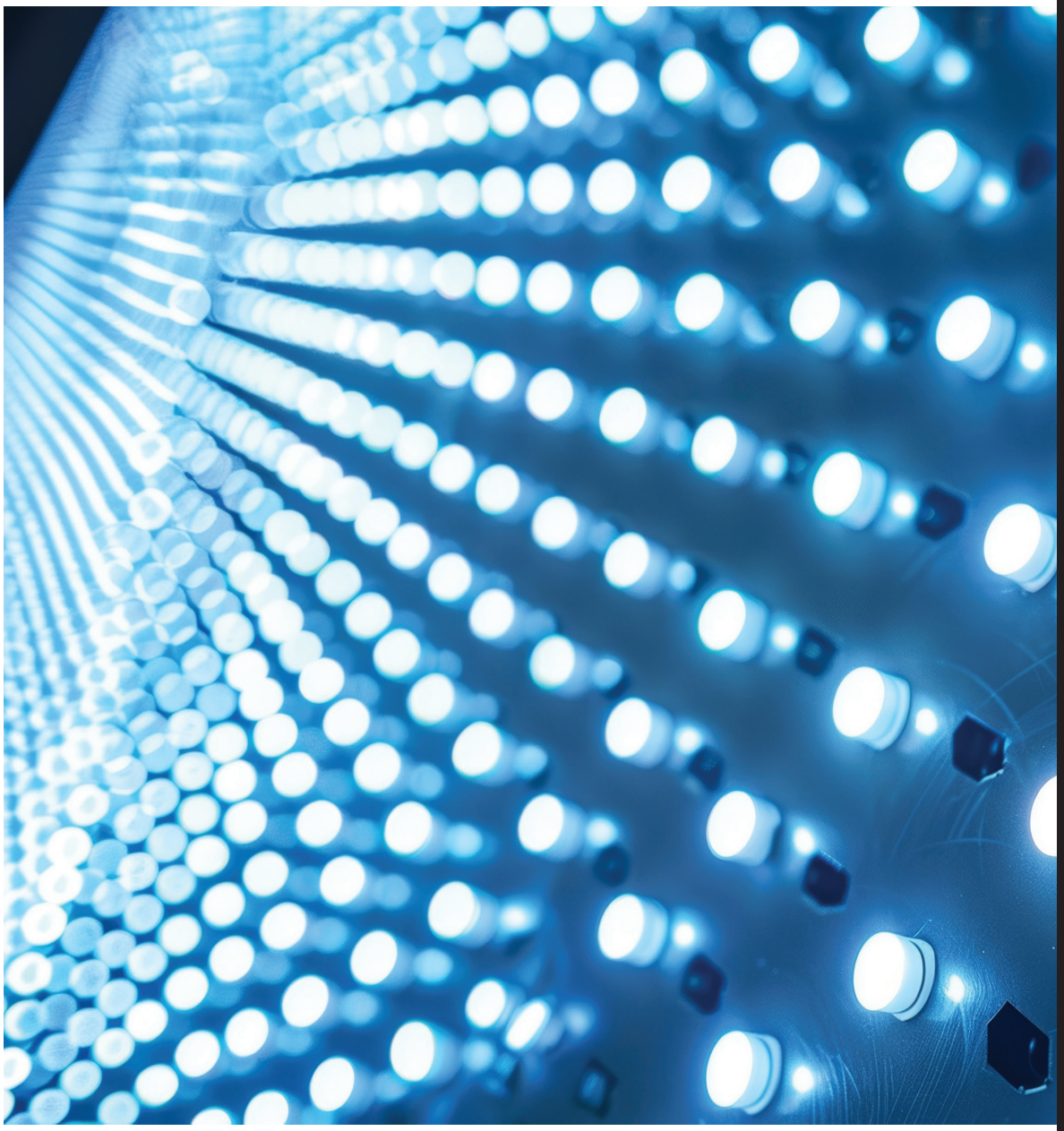
There is a growing global demand for cleaner, more efficient, and precise methods to address environmental pollution, especially in water and wastewater treatment. Traditional photochemical reactors often depend on mercury lamps, which are energy-consuming, environmentally hazardous, and provide limited control over reaction parameters. Researchers and industry professionals increasingly seek scalable, sustainable, and high-precision systems to investigate advanced oxidation processes (AOPs), photocatalysis, and synthetic chemistry for environmental remediation and material development.

Features

- LED Light Sources (UV, Vis, IR)
- Reactor Design
- Control System

Benefits

- Precise control over reaction conditions ensures more reliable and repeatable experimental results.
- LED lighting significantly reduces operational costs and carbon footprint.
- Suitable for photocatalysis, AOPs, environmental science, synthetic chemistry, and materials research.
- Easily integrated into academic labs, industrial pilot setups, or portable testing kits for fieldwork.



Industry

Manufacturing

Potential applications

- Water and wastewater treatment: degradation of pollutants and testing of advanced oxidation processes.
- Environmental remediation: photocatalytic removal of hazardous air, soil, and water contaminants.
- Photocatalysis research: evaluation and optimization of new photocatalytic materials.
- Chemical synthesis: controlled photochemical reactions for organic and material synthesis.
- Green chemistry and renewable energy: research toward sustainable, low-energy chemical processes.

Creator

Prof Alex Kuvarega

Stage of development

Early stage

Intellectual property

Patent Protection

Desired relationship

Co-development partner, Investors