UNIVERSITY OF MINNESOTA
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Water purification device for the simultaneous removal of heavy metals and organic pollutants

A novel photoelectrocatalysis device that can efficiently remove heavy metals and organic pollutants from water.

IP Status: Provisional Patent Application Filed

Applications

- Water purification

Technology Overview

Organic pollutants and heavy metals often exist in a mixed matrix in contaminated water supplies. Existing photoelectrocatalytic methods employ a photocatalyst at the working electrode which allows for the removal of organic species. However, in this design, the potential at the counter electrode is not low enough to reduce some common heavy metal contaminants. Researchers at the University of Minnesota have developed a novel water purification device that switches the counter and working electrode compared to traditional devices. This novel design reduces heavy metal ions at the working electrode and degrades organic pollutants at the counter electrode allowing for simultaneous removal of these harmful contaminants.

Phase of Development

TRL: 3-4
Proof of concept prototype has been developed.

Desired Partnerships

This technology is now available for:

- License
- Sponsored research
- Co-development

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Researchers

- **Tianhong Cui, PhD** Distinguished McKnight University Professor, Department of Mechanical Engineering

Technology ID
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Category
Engineering & Physical Sciences/Instrumentation, Sensors & Controls
Engineering & Physical Sciences/Processes
Engineering & Physical Sciences/Sustainable Technology

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