# 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: US Patent Pending; Application No. 18/745,149

# **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

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## **Technology ID**

2023-171

# Category

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

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