

## SolarTech Power Solutions

# Heterogeneous Flow Batteries



## Overview

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The novelty of this work is twofold: (i) we present a systematic framework for generating archetypes with internally homogeneous but mutually heterogeneous inputs that can be used to generate a training dataset, and (ii) we show how integrating generative models with Bayesian optimization can.

We propose and demonstrate a novel flow battery architecture that replaces traditional ion-exchange membranes with less expensive heterogeneous flow-through porous media. Compared to previous membraneless systems, our prototype exhibits significantly improved power density ( $0.925 \text{ W cm}^{-2}$ ), maximum.

Associate Professor Fikile Brushett (left) and Kara Rodby PhD '22 have demonstrated a modeling framework that can help guide the development of flow batteries for large-scale, long-duration electricity storage on a future grid dominated by intermittent solar and wind power generators. Sample.

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