## 2023 IRG-2 Intellectual Merit UCI MRSEC DMR-2011967

## Fully Electrically Fueled Supramolecular Living System

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## This Work Reports:

- The first example of a fully electrically fueled dissipative self-assembly system.
- The active systems can be sustained over a long period of time.
- The system does not generate any chemical waste.
- The active assembly can be spatiotemporally controlled precisely.

## Impact:

- This work overcomes a major challenge in the fueled active materials field by developing waste-free, sustainable active system.
- This work opens door toward developing an dynamic neuromorphic signaling device, which fits well with one of the primary goals of IRG 2.



Barpuzary D, Hurst PJ, **Patterson JP**, **Guan Z**. "Waste-free, complete electrically fueled dissipative self-assembly materials" *Journal of the American Chemical Society*, **145**, 3727-3735 (2023). <u>https://doi.org/10.1021/jacs.2c13140</u>



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