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Electrically Fueled Active Supramolecular Materials

Tech ID: 33452 / UC Case 2022-710-0

BRIEF DESCRIPTION

Invention of a new platform for creating active supramolecular materials using electrical energy as the fuel.

APPLICATIONS

Creation of life-like dynamic materials

Potential application in bioelectronics devices

Development of efficient energy-source for supramolecular materials

ADVANTAGES

Fast assembly/disassembly (seconds to minutes)

Directional assembly

High dynamics and precise spatiotemporal control

Problems Solved:

- » Lack of an energy-effective method for creating active supramolecular materials
- » Inefficiency and imprecision in the assembly of supramolecular materials

FULL DESCRIPTION

This invention pertains to the use of electrically fueled dissipative assembly as a new platform for creating active supramolecular materials. By applying an electrical current to a solution containing redox-sensitive building blocks, an electrochemical oxidation fuels self-assembly of active materials. The approach provides an opportunity to fast integrate active materials into electronic devices for bioelectronics applications.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	12,516,425	01/06/2026	2022-710
Patent Cooperation Treaty	Published Application	WO 2023/004171	01/26/2023	2022-710

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OTHER INFORMATION

KEYWORDS

Supramolecular materials, Electrical energy, Electric potential, Dissipative self-assembly, Active materials, Bioelectronics, Electricity

CATEGORIZED AS

- » **Energy**
- » Other
- » **Materials & Chemicals**
- » Chemicals
- » Other

RELATED CASES

2022-710-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

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