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
<table>
<thead>
<tr>
<th>Country</th>
<th>Type</th>
<th>Number</th>
<th>Dated</th>
<th>Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patent Cooperation Treaty</td>
<td>Published Application</td>
<td>WO 2023/004171</td>
<td>01/26/2023</td>
<td>2022-710</td>
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</tbody>
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Additional Patent Pending

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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
ADDITIONAL TECHNOLOGIES BY THESE INVENTORS
- Dendritic Peptide Bolaamphiphiles for siRNA Delivery
- Biodegradable Polymeric Vectors For Delivery Of Various RNAs
- Dynamic polymers based on siloxane exchange