SOLID STATE ELECTROCHROMIC ENERGY STORAGE SYSTEMS

Solid state electrochromic energy storage systems with the ability to modify the optical contrast (transparent mode with no current) as well as to be used as a battery.

ERGANEO
L'AVENIR EST FAIT D'AUDACE

PRESENTATION

Viologen derivatives have the ability to change color in UV-Vis range as well as to strongly absorb in near-IR.
Their redox properties can also be used for electrochemical energy storage.
Based on these multifunctional materials, we are developing a dual system with electrochromic properties to adjust the optical contrast as well as the ability to store energy, resulting in an electrochromic energy storage system. Unlike commercial systems, transparent mode is here achieved without current, significantly reducing system power consumption. The organic layers can be deposited either on rigid glass or on flexible plastics.
Finally, this system is being developed using bio-based products.

Use case example (unrestricted)

Electrochromic - Optical contrast - Energy storage
Battery - Smart glass - Electroactive ionic liquid polymers

COMPETITIVE ADVANTAGES

- Transparent mode without current
- Battery function
- Bio-based electrolytes
- Flexible molecular engineering
- Compatible with mass production (printing technology)

APPLICATIONS

- Building
- Automotive
- Aeronautics
- Electronics, IoT

DEVELOPMENT PHASE

- ☑ Based on the successful results of a first prototype, a second one of 25cm x 25cm is being developed (TRL 4-5) and expected to be transferred in Q3 2022.

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INTELLECTUAL PROPERTY

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