



An Electron Transistor with Ionic Gating and Complementary Optical Response

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Summary: A thin film transistor that can modulate its optical transmission from opaque to transparent

Description: Thin film transistors are switches that are used to activate and control electronics such as smart cards and displays. They are typically fabricated using semiconducting channels, where the modulation is controlled by electron injection/rejection. This invention describes a thin film transistors that has a channel that is capable of mixing ion/electron conduction. The conductivity of the channel is altered between insulating and metallic through the intercalation of ions and the channel material can modulate its optical transmission from opaque to transparent.

Main Advantages of this Invention

- Offers low turn-on voltages ($< 1V$) and high on/off current ratios ($>10^9$)
- Electrically controlled optical response

Potential Areas of Application

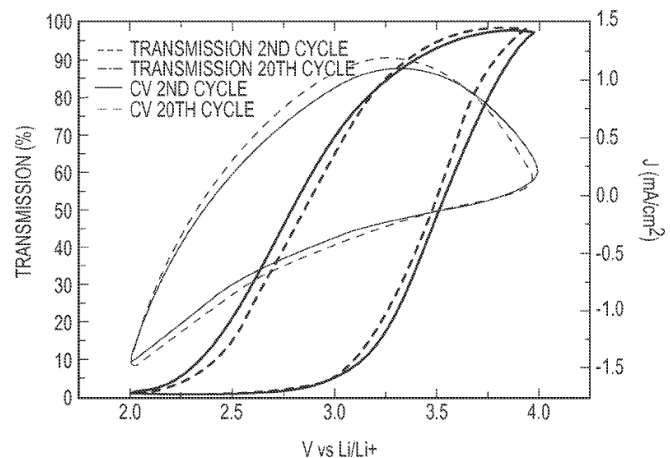
- Biotechnology
- Optical Computing
- Batteries
- Microelectronics

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Intellectual Property Status: US utility patent pending (application #14/700,287)

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Opportunity: We are seeking an exclusive or non-exclusive licensee for marketing, manufacturing, and sale of this technology.



Cyclic voltammogram (right) and corresponding optical transmission at 670 nm (left)

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