

Processing of Organic Electrochemical Transistors

Supplementary Information

MRS Communications

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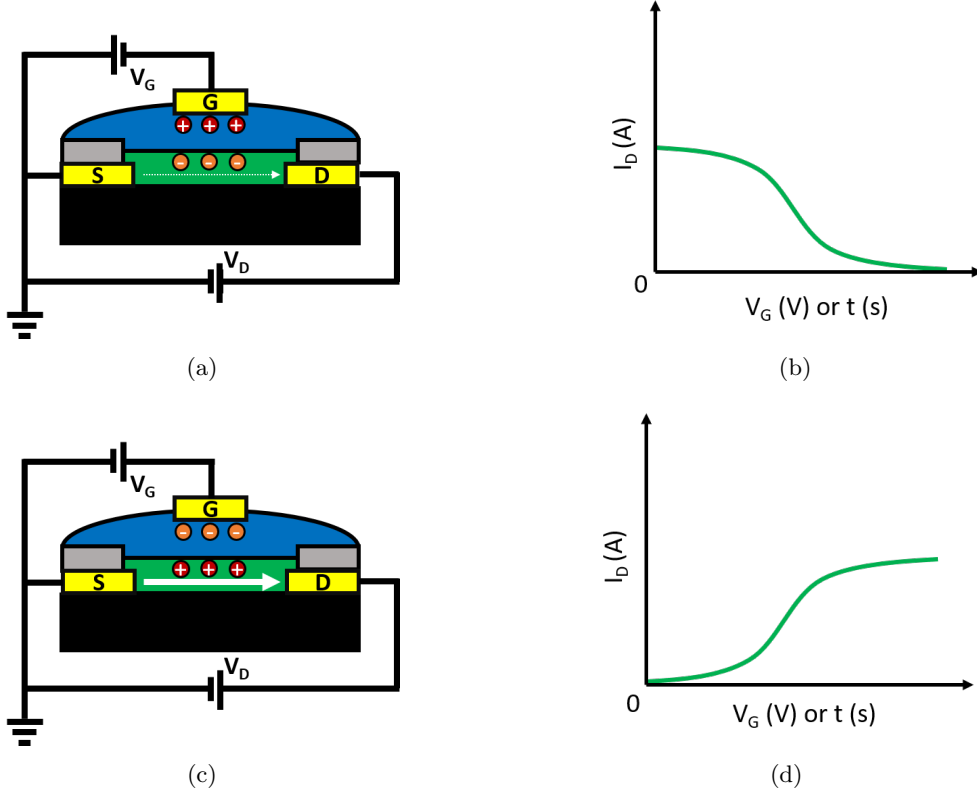


Fig. S1: a) Application of a negative gate voltage (V_G) between S and G electrodes on an n-type depletion mode OEET, decreasing its current density I_D (de-doping) when under constant drain voltage (V_D). b) Graphical representation of I_D decay when an n-type depletion mode OEET is under negative V_G . c) Application of a positive V_G between S and G electrodes on an n-type accumulation mode OEET, increasing its I_D (doping). f) Graphical representation of I_D increase when an n-type accumulation mode OEET is under positive V_G .

Table S1: Pros and cons of deposition methods for active materials on Organic Electrochemical Transistors (OECTs).

Deposition method	Pros	Cons
Spin coating	• Low cost. • Compatible with large variety of materials and solvents.	• Requires posterior structuring. • Usually restricted to small samples. • High material waste.
Screen printing	• Low cost. • Does not require posterior structuring. • Suitable for large scale production. • High reproducibility.	• Specific ink properties required. • If not automated, subject to human error (squeegee pressure and angle).
Ink-jet printing	• Does not require posterior structuring. • Suitable for large scale production. • High precision. • Uses less material than screen printing. • High reproducibility.	• Slower processing than screen printing. • Low material waste. • Specific ink properties required. • Specific nozzle parameters required.
3D printing	• Does not require posterior structuring. • Suitable for large scale production. • Deposition on irregular surfaces is possible. • High reproducibility.	• Slower processing than screen printing. • Low material waste. • Specific ink properties required. • Specific nozzle parameters required.
Aerosol jet printing	• Does not require posterior structuring. • Suitable for large scale production. • Deposition on irregular surfaces is possible. • High resolution. • High reproducibility. • Less prone to nozzle clogging.	• Requires atomizer (increases cost and complexity).
Electropolymerization	• Does not require posterior structuring. • High resolution.	• Requires conductive surface to start film formation.