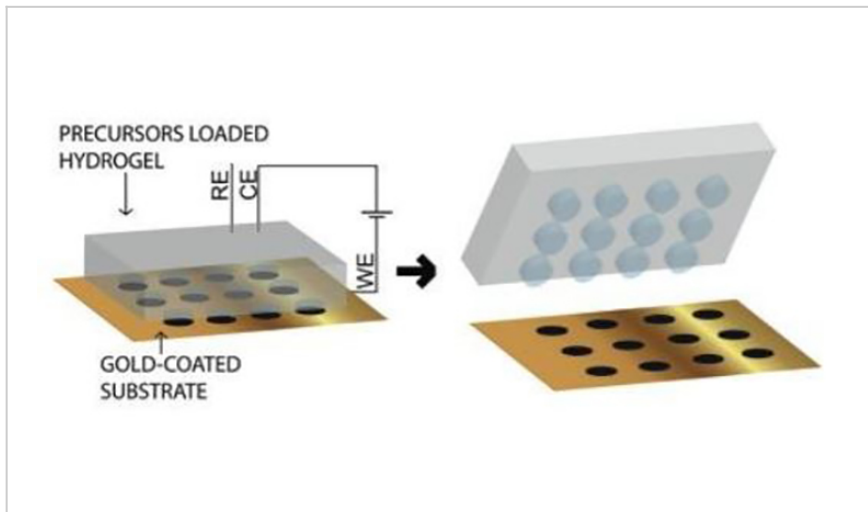


Novel Direct Patterning of Conducting Polymer Films

ID# 2013-4171



patterning of conducting polymer films

Technology Summary

This novel process generates high-fidelity conducting polymer (CP) films via electropolymerization through hydrogels. The invention relies on topographically-patterned biocompatible absorbent materials to deliver solutions to selected areas of the electrode's surface. This solution-free technique produced high-fidelity film patterns of CPs with various geometrical shapes ranging from 40 microns to 1mm. The inventors extended the technique to fabricate patterned polymeric films with multiple chemistries in specifically targeted spots. These results confirm that this technique can deliver multiple distinct dopants and produce patterned CP films with various chemistries and properties on the same substrate in a single-step procedure.

Application & Market Utility

The invention's scalability allows for rapid and efficient fabrication of a large number of patterned CP films. The inventors extended the process to produce patterned CP films with entrapped bioactive molecules. The inventors also showed that a single hydrogel stamp can deliver multiple dopants in parallel and thus generate patterned CP films with multiple surface chemistries in a rapid single-step process. This simple, readily-accessible method has potential applications for cell and tissue engineering, biomaterials, biosensing and bioelectronics.

Next Steps

Seeking licensing opportunities.

TECHNOLOGY READINESS LEVEL

4-7

Seeking

Investment | Licensing | Research

Keywords

- hydrogel stamp
- conducting polymers
- microcontact printing
- US Patent No. 10,179,953

Researchers

Sheeren Majd, Ph.D.

Assistant Professor of Biomedical Engineering

Mohammad Reza Abidian, Ph.D.

Originating College

College of Engineering

Office of Technology Management Contact

Smith, Matthew
mds126@psu.edu
814-863-1122