SFU SIMON FRASER UNIVERSITY

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Physical Supercritical Fluid Deposition

Creating high device densities for flexible and curved electronics

Request an introduction

Reference: 2013-013

Source: luchschenF, https://stock.adobe.com/uk/90115023, stock.adobe.com

IP Status

Patented

Seeking

Development partner, Commercial partner, Seeking investment, University spin out

Background

Creating curved and flexible electronics requires new approaches to standard deposition techniques for device fabrication. Common methods of fabricating thin films of materials include chemical vapor deposition and vacuum deposition. However, these are line-of-sight deposition techniques that limit them to planar substrates. In addition, they cannot be used with polymeric active layers, which often have superior performance characteristics.

Tech Overview

SFU researchers have developed a general method of thin film deposition that does not rely on line-of-sight material transport, allowing patterns to be formed on surfaces of arbitrary curvature.

The technique relies on a unique property of supercritical solvents to precipitate materials onto a heated substrate. By controlling the regions that are heated, deposition can be controlled with a high degree of accuracy. Linewidths of less than 10 micrometers have already been achieved, a 100x reduction seems feasible. In addition, material transport occurs in solution, allowing deposition onto any surface which can be heated, irrespective of its shape.

Benefits

- This technique is highly effective for curved and flexible surfaces
- Deposits high molecular weight materials
- Promising outlook for scalability
- Decreases material waste

Patents

- IP Filed: WO 2018/218373, US 16/618,296, CA 3,064,609, Priority Date: June 2, 2017

Learn more about this opportunity

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