

# Highly Stretchable And Conductive Inks For Printed Circuits

Tech ID: 34260 / UC Case 2025-760-0

## BRIEF DESCRIPTION

A method to manufacture stretchable circuit boards using silver ink for wearable applications.

## FULL DESCRIPTION

This invention involves a novel method to easily manufacture stretchable circuit boards. The technology boasts a low-cost approach to combine a layer of wrinkled silver ink, stretchable silicone, and nylon-mesh for optimal integration of electronic components. These layers overcome the stiffness mismatch between solder and polymer substrates, often seen in wearable devices due to failure in integrated electronics. This method simplifies the manufacturing process and significantly reduces the use of silver material. Additionally, the process operates at low temperatures, improving circuit properties without requiring specialized equipment.

## SUGGESTED USES

- » Wearable electronics requiring flexible and stretchable circuit boards.
- » Medical devices that benefit from more adaptable and comfortable electronic components.
- » Consumer electronics and automotive vehicle electronics applications with resilient and durable designs.
- » Research and development in flexible electronics, providing a more accessible platform for prototyping and innovation.

## ADVANTAGES

- » Cost-effective compared to traditional methods, using silver nanoparticles instead of whole silver wires.
- » Simplifies the manufacturing process by eliminating the need for complex serpentine designs and specialized equipment.
- » Reduces the space required on the circuit board by avoiding messy and space-consuming serpentine shapes.
- » Improves the durability and reliability of stretchable circuit boards by solving the stiffness mismatch issue.
- » Enables mass production of stretchable circuit boards with improved electrical performance due to low-temperature fabrication.

## PATENT STATUS

Patent Pending

## CONTACT

Alvin Viray  
aviray@uci.edu  
tel: 949-824-3104.



## OTHER INFORMATION

## KEYWORDS

Wearable Device, Wrinkled Silver, Stretchable Circuit, Conductive Ink, Silver Ink, Spray Printing

## CATEGORIZED AS

- » **Materials & Chemicals**
  - » Other
- » **Medical**
  - » Devices
- » **Semiconductors**
  - » Design and Fabrication
  - » Materials
- » **Sensors & Instrumentation**
  - » Medical

RELATED CASES

2025-760-0

**UCI** Beall  
Applied Innovation

5270 California Avenue / Irvine, CA  
92697-7700 / Tel: 949.824.2683



© 2025, The Regents of the University of  
California  
[Terms of use](#)  
[Privacy Notice](#)