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Cleaner, Greener Metal Films for Flexible Electronics and Solar Cells

New patented method for mask-less production of nano- and micro-patterned metal films

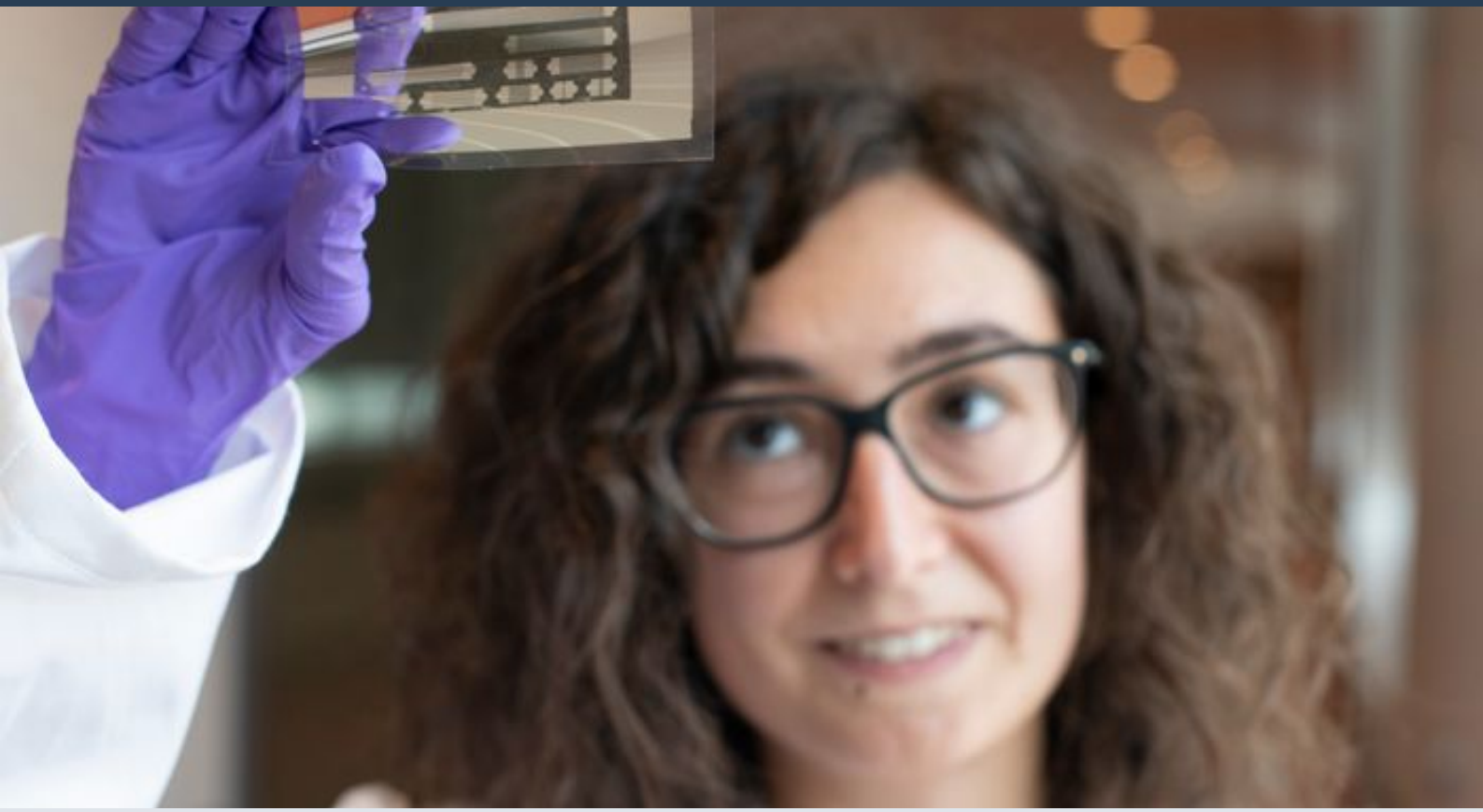

Image credit: University of Warwick

IP Status

Patent application submitted

Seeking

Development partner, Licensing, Seeking investment

About **University of Warwick**

We are committed to ensuring that our research makes a distinctive, competitive impact on the world. We believe in a collaborative approach to research and education in addressing global challenges and opportunities.

Background

Silver and copper are the most widely used electrical conductors in modern electronics and solar cells. However, conventional methods of patterning these metals to make the desired pattern of conducting lines are based on selectively removing metal from a film by etching using harmful chemicals or printing from costly metal inks.

Tech Overview

Scientists from the Department of Chemistry at the University of Warwick, have developed a novel method of depositing patterned metal films that is likely to prove much more sustainable and cheaper for large scale production, because there is no metal waste or use of toxic chemicals, and the fabrication method is compatible with continuous roll-to-roll processing. Proof of concept devices with aperture sizes down to ~100 nm and aperture densities up to ~6 million per cm^2 have been produced. The technology has been developed through £1.15 M funding from the UK Engineering and Physical Sciences Research Council.

Benefits

The Warwick method offers a number of benefits over currently available approaches, including:

- A scaleable manufacturing process, compatible with roll-to-roll processing
- No harmful chemical etchants
- No contamination with lithographic resist residues
- Lower production costs

Applications

Patterned metal films with precisely controlled aperture sizes have applications across a wide range of market sectors, including:

- Semi-transparent top electrodes for solar cells
- Flexible biosensors
- Low-emissivity glass
- Flexible display technologies

Opportunity

Warwick Ventures is seeking licensees, development partners and investors to bring this technology to market in a number of market sectors.

Patents

- PCT/GB2019/052994 "Selective deposition of metallic layers"