

## A novel method of silver seed layer formation for copper electroless deposition on glass

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In the fabrication of electrode on display panel, solar cells, and MEMS devices, it is desirable to fabricate the electrodes and interconnects with materials having a low electrical resistivity in order to optimize its electrical performance by decreasing the resistance.

Electroless deposition (ELD) is a promising technique for producing copper electrodes due to its low cost and ability to fabricate patterns with complex geometry and of large area. So far a few methods for catalyst layer preparation on glass have been reported. These are Pd activation from solution or suspension after SnCl<sub>2</sub> sensitization, Ag particle deposition on mercaptane modified glass surface. Ag catalyst seems to be more preferable due to its low cost and environmental safety.

We developed a novel method of copper electroless on glass, based on a silver catalytic layer supplied both as a liquid phase and as an electroless deposited silver film on glass surface functionalized with 3-aminopropyltriethoxysilane (APTES) and 3-mercaptopropyltrimethoxysilane (MPTS).

Three different methods of silver seed layer formation were tested, based on using different reducing agents (formaldehyde and glucose). Adhesion and resistivity of the ELD deposited copper films were analyzed as well.