

Thin Film transparent conducting nanowires for display panels (Ramot)

code: 11-2012-336

[Gil MARKOVICH](#), T.A.U Tel Aviv University, Exact Sciences, School of Chemistry

Technology's page: <http://ramot.org/nanowires>

Technology

A conductive transparent thin film which is based on gold nanowires prepared in solution and is very easy to apply to a variety of substrates using printing or spinning techniques.

The developed process includes three steps:

- ☐ Substrate seeding with gold nanoparticles, which may be performed using printing of patterned structures
- ☐ Nanowire growth from seeds by applying a growth solution on the substrate
- ☐ Nanowire metallization directly on the substrate, using silver plating solution

When required by the application, additional protective layer can be deposited on top of the silver nanowire layer.

The process is water based, performed close to room temperature, and is environmentally friendly.

The growth can be performed on various substrates, including glass and PET (both flat and curved). Patterning is easily performed during the seeding step using inkjet (line widths down to 20 μm) or photolithography (for narrower lines). Typical coating cost (per unit area) is comparable to that of ITO, and is likely to be lower if patterning is required.

The resulting coating demonstrates high transparency (87-95%) and low haze (