

# Growth of CuO thin films by hydrothermal method for electronic applications

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Copper oxides are intensively studied due to the possibility of the application in electronic devices. These oxides are characterized by low production costs, non-toxicity and beneficial electric properties. CuO has an energy gap of 1.2 eV and a monoclinic crystallographic structure. It is possible to crystallize it using various methods. So far, a few attempts have been made to deposit CuO layers using ALD or PVD methods, but it had not been possible to obtain high quality and homogeneous films.

In this work, we present an extremely simple, fast and safe technology for deposition of CuO layers from a water solution in an open system. The method is based on a dynamic reaction in the hydrothermal process and is characterized by a high growth rate (process duration is only several minutes) and low growth temperature (below 100°C). Developed method allows for simple scaling the sizes of the substrate - it has been already scaled up for substrates of size 15.6×15.6 cm<sup>2</sup>.

The technology of growth, the characterization of the obtained thin films and the process of the optimization will be presented.

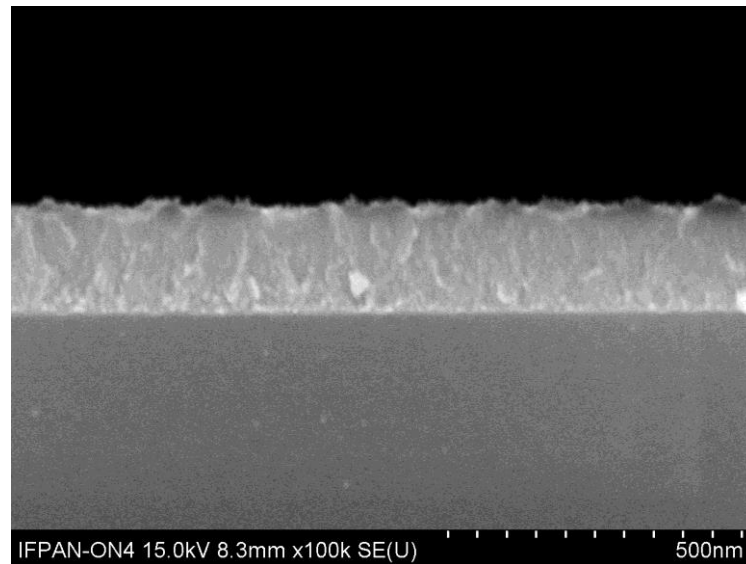


Fig. 1 SEM image of obtained CuO film

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