

## Supplementary Information

### Synthesis of $\text{Cu}(\text{OH})_2$ and $\text{CuO}$ nanotubes arrays on a silicon wafer

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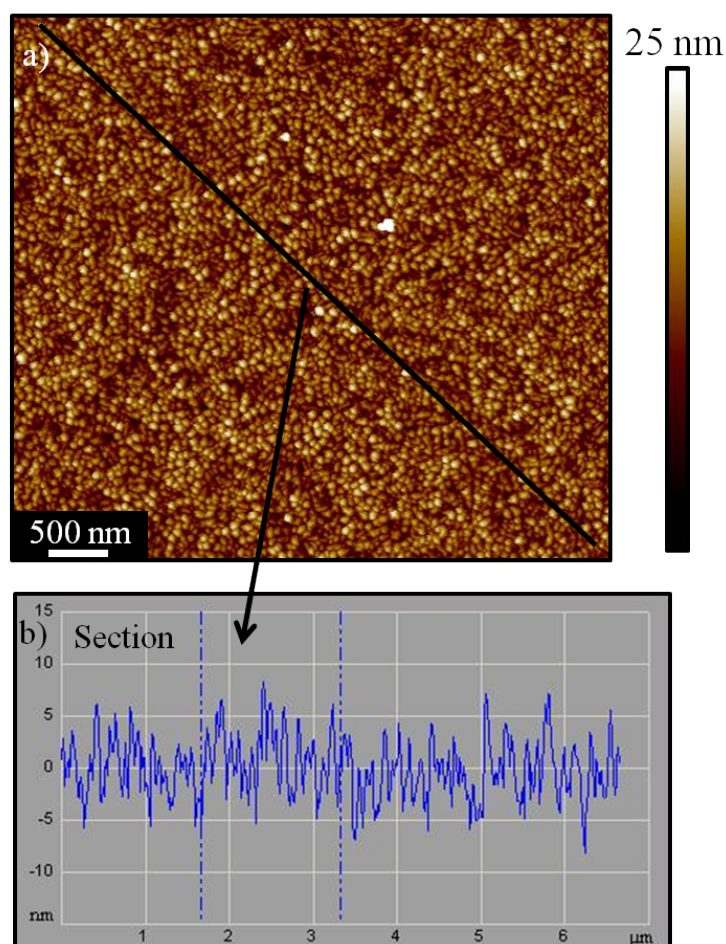


Fig.S1: **Roughness of the copper layer.** AFM a) image and b) cross section of the surface of the copper layer deposited on the top of a silicon wafer covered by 30 nm of titanium.

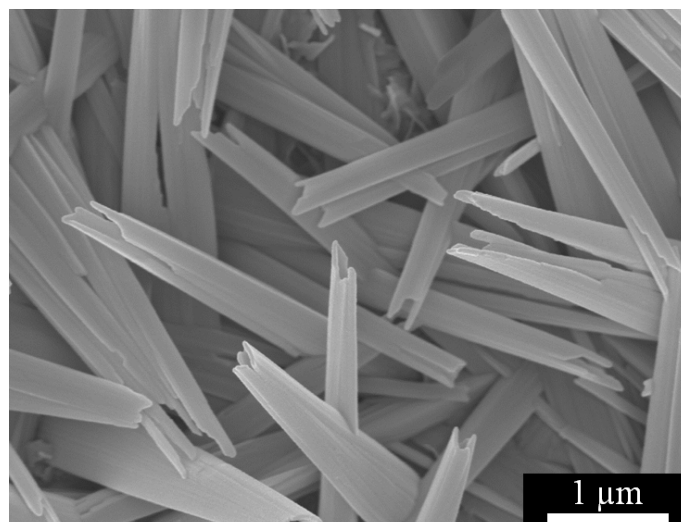


Fig.S2: **Growth of  $\text{Cu}(\text{OH})_2$  tubes by using only the first reaction.** SEM image of  $\text{Cu}(\text{OH})_2$  tubes grown on the copper layer when the wafer was exposed only to the first reaction during 5 hours.

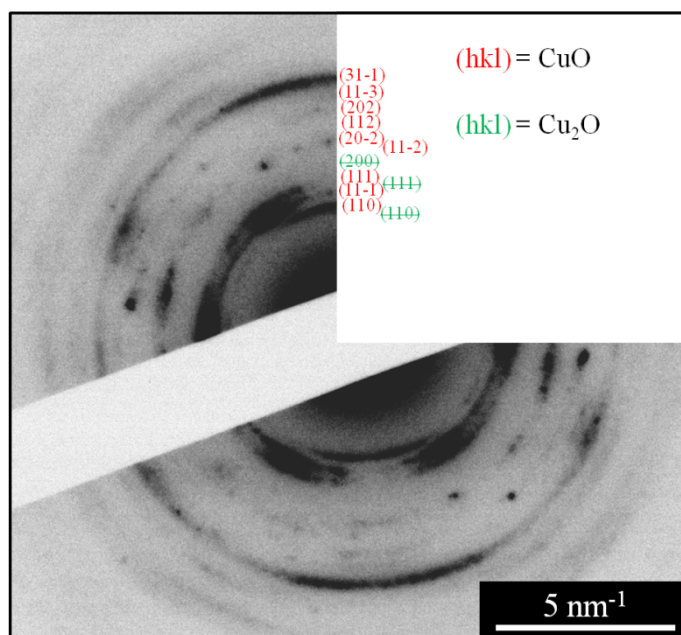


Fig.S3: **Origin of  $\text{Cu}_2\text{O}$  in the annealed samples.** Electronic diffraction of a single tube annealed under a  $\text{N}_2$  gas flow at 200°C during 1 h.