

## **Description of Additional Supplementary Files**

File Name: Supplementary Movie 1

Description: Initial stages of Cu nucleation and growth at 58 x 58 nm ITO surface during 49 s, at a constant overpotential of -0.27 V.”

File Name: Supplementary Movie 2

Description: Growth on a pre-formed stable Cu nucleus on the ITO surface over a period of 57 s at an overpotential of -0.27 V. The final frame shows a superimposed 3D image of the particular growth (as in Figure 5c).”