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PAPER

Thermal behavior of MOCVD-grown Cu-clusters on ZnO(10$\bar{1}$0)

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Scanning tunnelling microscopy (STM) and X-ray photoelectron spectroscopy (XPS, AES) were used to study MOCVD of Cu-clusters on the mixed terminated ZnO(10$\bar{1}$0) surface in comparison to MBE Cu-deposition. Both deposition methods result in the same Cu cluster morphology. After annealing to 670 K the amount of Cu visible above the oxide surface is found to decrease substantially, indicating a substantial diffusion of Cu atoms inside the ZnO-bulk. The spectroscopic data do not show any evidence for changes in the Cu oxidation state during thermal treatment up to 770 K.