**Ohmic and schottky contacts on ZnO nanorods**

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Recent technical advances in preparations of semiconductor nanowires/nanorods have spurred fabrications of several prototypes of electronic and photonic nanodevices. Nevertheless, for reliable operation of the nanodevices, metal-semiconductor (M-SC) junctions for good Ohmic or Schottky contacts must be fabricated. In general, high thermal stability and a low contact resistance are required for good Ohmic contacts and a low leakage current and a high Schottky barrier for Schottky cotacts. Here, we report on control of nanosize metal contacts on vertically aligned ZnO nanorod arrays and their electrical characterizations. Metal-ZnO nanorod heterostructures were fabricated by evaporating metal on vertically well-aligned ZnO nanorods. Since metal is selectively deposited on ZnO nanorod top surfaces, the interface between the metal layer and ZnO nanorods was atomically abrupt as determined by transmission electron microscopy (TEM). Furthermore, electrical junction properties of the heterostructures were investigated using conducting probe atomic force microscopy (AFM). Current-voltage (I-V) characteristics of the metal-ZnO nanorods were measured on the metal-coated nanorod tips with a current- sensing module. In particular, either linear or rectifying I-V characteristic has been obtained, depending the metal deposited on ZnO nanorods.