Characterization of co-synthesized titanium and ZnO nanostructures

ABSTRACT

Pure and ZnO-Ti mixed nanowires were synthesized on a p-type silicon wafer. ZnO powder and Ti were mixed and mechanically milled in a ball milling machine. ZnO-Ti mixed nanowires were grown from the milled powder by using thermal evaporation method. Pure and ZnO-Ti mixed nanowires were grown by vapor solid method, using a furnace at 1000degC on a p-type silicon wafer. Characterizations have been done by FE-SEM, EDX and XRD. FE-SEM micrograph shows that the ZnO-Ti mixed nanowires are utilizing ZnO nanowires as bases to start the growth. Ti nanostructure cannot grow directly on the substrate. The segregative growth of Ti and ZnO nanowires describe the difficulty of incorporating Ti into ZnO nanowires.