

## Effect of pH variation on the morphology and properties of zinc oxide

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A transition from nanosheets to hexagonal zinc oxide nanorods was successfully achieved by the variation of pH of the precursor solution of zinc acetate dihydrate and sodium hydroxide. For this the solution pH of changes by the sodium hydroxide and hydrochloric acid and was refluxed at 90°C for one hour. The structural changes were confirmed by the FESEM spectroscopy. The morphology was further analyzed by the TEM spectroscopy. It reveals that the grown zinc oxide nanostructures are clearly consistent with the FESEM observations and grew along [0001] direction with an ideal lattice fringes distance 0.52nm. The crystallinity and crystal phases were analyzed by the X-ray diffraction pattern and it presents that the synthesized powder is zinc oxide with out any other impurities. On the basis of these observations we also proposed the growth mechanism of zinc oxide nanostructures.