

## Controlled diameter of silicon nanowires which were synthesized on Au coated Si wafers

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Silicon-silicon oxide core shell hetero-structural nanowires were grown on the gold deposited silicon wafer by thermal evaporation of SiO + BO powders. After evaporation, nanowires were synthesized with bright-gray colors. The nanowires on the substrates were systematically studied by scanning electron microscopy, transmission electron microscopy and X-ray diffraction. The results showed that the successful growth of crystalline core surrounded by an amorphous silicon oxide shell using the thermal evaporation combined with the VLS and VS growth mechanism.

The gold dots from gold thin film on the silicon wafer as starting points for nanowires growth. The changes of pressure has influence upon diameter of hetero structural silicon nanowires which were synthesized. It were linear dependence between the diameter of nanowire which were synthesized on the substrates and changes of pressure. It were linear dependence between the diameter of hetero-structural silicon-silicon core-shell nanowires which were synthesized on substrates and changes of pressure. HR-TEM micrograph show hetero-structural nanowires which were formed a crystalline silicon core and amorphous silicon oxide shell.