

On morphology of indium phosphide based nanowires. / D. Jishiashvili, Z. Shiolashvili, N. Makhatadze, A. Jishiashvili, B. Buadze, L. Chkhartishvili. / Nano Studies. – 2015. – # 12. – pp. 79-86. – eng.

The InP based nanowires were produced by direct annealing of crystalline InP sources in hydrazine (N_2H_4) vapor and subsequent condensation of volatile species onto the substrates. The morphology and sizes of nanowires showed strong dependence on the growth temperature. In the temperature range of 440 – 540 °C, the morphology of InP nanostructures were changed from true nanowires with minimum diameters of ca. 25 nm formed at 440 °C, to faceted, several μm size large crystalline blocks of InP growing at 540 °C simultaneously with the rhombus decorated zigzag shaped InP nanowires with extended surfaces. The nanowires growth mechanism also varied with the temperature. In the range of 440 – 500 °C they were growing through the Vapor–Solid mechanism. At 540 °C the Vapor–Solid and Vapor–Liquid–Solid mechanisms coexisted forming large elongated blocks of indium phosphide together with zigzag shaped InP nanowires. Fig. 5, Ref. 19.

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