

## Growth of InP nanowires on silicon using a thin buffer layer

### ABSTRACT

InP nanowires (NWs) are grown on Si substrate using a thin inter-mediate buffer layer. The buffer layer is grown in two steps. An initial nucleation layer is crucial to accommodate the lattice mismatch between InP and Si. A high quality 2nd layer is grown on this initial layer with smooth morphology suitable for the NW growth. More than 97% vertical yield is achieved on the buffer layer and the morphology and photoluminescence of the NWs are similar to those grown on InP(111)B substrate.

**Keyword:** InP nanowires (NWs); Silicon; Thin inter-mediate buffer layer; III-V materials; Monolithic integration of photonics