Gate-Controlled Spin-Orbit Interaction in InAs Quantum Well Structures Epitaxially Transferred onto Si Substrates

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Gate-controlled spin-orbit interaction (SOI) in InAs quantum well (QW) structures has been investigated after the epitaxial transfer onto Si substrates.[1] Successful epitaxial transfer of the QW structure after separation from an original InP substrate ensures that the InAs QW maintains a strong bonding interface and good crystalline quality with a high electron mobility. Furthermore, Shubnikov-de Haas (SdH) oscillation analysis reveals that a Rashba SOI parameter can be manipulated using a gate electric field for the purpose of spin field-effect transistor operation.

References: