Joint Annual Meeting of the Swiss and Austrian Physical Society 2023



Contribution ID: 114

Type: Talk

[826] Strain Analysis in Ge Quantum Well by GPA and Raman techniques

Friday 8 September 2023 13:15 (15 minutes)

Silicon with its long coherence time of spins of localized electrons is a candidate for quantum information processing . Among quantum materials compatible with Si there is germanium (Ge), which has however a 4.2% mismatch. Such a mismatch introduces strains in Si/Ge heterostructures hindering mobility. Thus, scattering must be minimized by diminishing strains. Interestingly, electron and hole qubits can be created in Si and Ge, respectively .

In this work, we grew Ge quantum wells (QWs) embedded in Si/Ge heterostructures. First, we localized the Ge-QW using energy-dispersive X-ray (EDX) spectroscopy. Finally, we studied the local strain in the Ge-QW by Raman spectroscopy and geometric phase analysis (GPA).

Theoretical Work

Author: RUIZ, Alicia

Co-authors: Mrs NIGRO, Arianna; Dr GADEA DIEZ, Gerard; Mr FORRER, Nicolas; Mr TRAUTVETTER, Johannes; Prof. ZARDO, Ilaria

Presenter: RUIZ, Alicia

Session Classification: Quantum Computing

Track Classification: Quantum Computing (by NCCR SPIN)