

Ballistic hole injection velocity analysis in Ge UTB pMOSFETs: Dependence on body thickness, orientation and strain

Objective:

- Calibrate v_{inj} as a device performance metric.
- Find optimum regime of best performance for Ge UTB for hole transport.

Approach:

- Extract density of states and density of modes information from 2D E-k.
- Compute injection velocity at a given charge density.

Result:

- Demonstrated a direct correlation between theoretical injection velocity and experimental mobility.
- (110)/<110> Ge UTB found to be having highest injection velocity.

Impact:

- Results published in ISDRS 2011 (UMCP).

