Atomic layer deposition of TiN layer in interposer chip for superconducting quantum processor unit

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Supplementary material

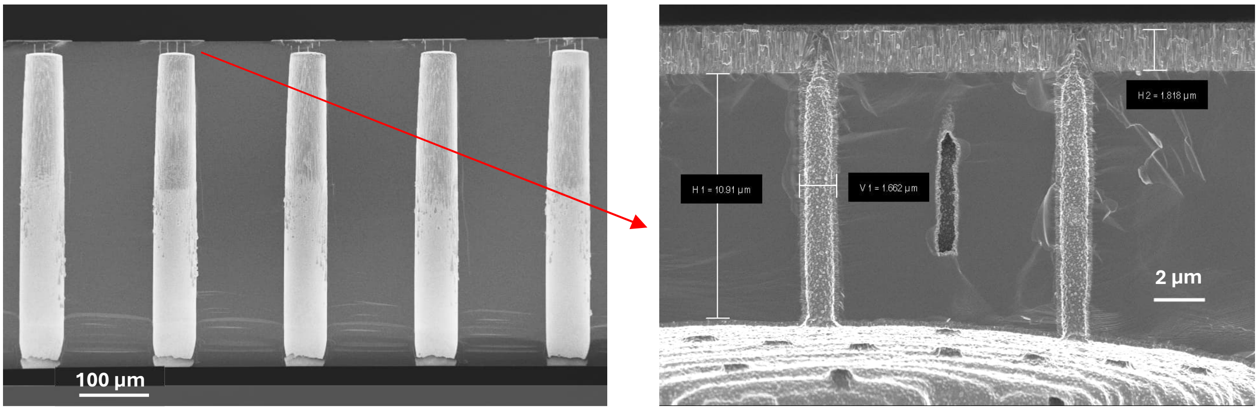
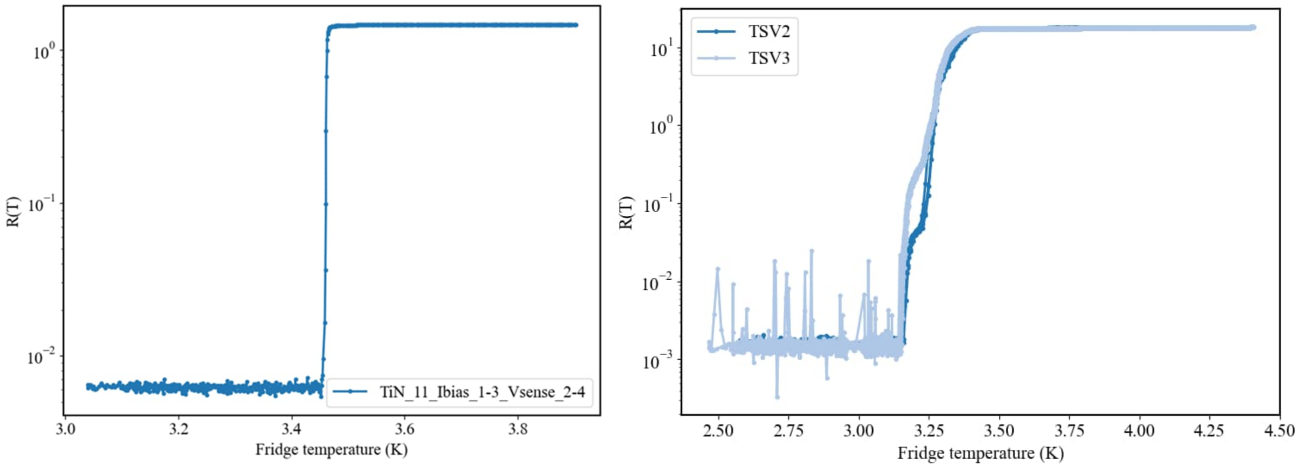


Figure 1. Cross-section SEM of 60 µm diameter “Shower head” type TSVs: close to the surface individual TSV is split into array of 1.5 µm diameter TSVs. Magnified SEM picture of the top part shows a conformal TiN layer coating the sidewalls.



a b

Figure 2. Critical temperature T_c for thermal ALD deposited TiN film (a) and T_c measured through the TSV shown in figure 1 (b).