



Poster-Session

Magnetron sputtering of STO and YBCO for integrated high temperature superconductors

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Quantum technologies and quantum computing in particular will be disruptive in many areas and applications. In order to minimize any noise and interactions with the environment, quantum computing requires temperatures close to absolute zero for achieving high qubit lifetimes. For the low-temperature range and all electrical interconnects, ohmic losses also play a decisive role, which require a higher cooling power to keep the quantum chips at the required temperatures. Therefore, superconducting materials in general and high-temperature superconductors such as orthorhombic yttrium-barium-copper oxide (YBCO) show great potential. In contrast to other superconducting materials, the transition temperature of YBCO (92 K) for $\geq 1 \mu\text{m}$ thick films enables cooling of the quantum chip with liquid nitrogen (77 K).

The poster focuses on the deposition of both SrTiO_3 (STO) as morphologic seed layer and YBCO thin films by RF magnetron sputtering as well as the analysis of the deposited thin films.