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Two-qubit gates on fluxoniums with tunable capacitive coupling

Abstract: Fluxoniums hold the record in coherence times among superconducting qubits. Unlike transmons, they have a large relative anhamonicity, which allows to go from the gigahertz range for the transition frequency to the hundreds of megahertz and even lower. Yet building a universal quantum processor requires more that just two-level systems with high coherence, which is probably why all the recent large-scale superconducting quantum processors are built from (better developed) transmons. This talk will be devoted to how building a scalable quantum computer from fluxoniums is different from transmons, and an experimental realization of reset, readout, single-qubit and two-qubit gates with fluxoniums as an example.