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Gradiometric persistent current flux qubit with tunable tunnel coupling¹ F. DEPPE, M. SCHWARZ, J. GOETZ, A. BAUST, M. HAEBERLEIN, E. HOFFMANN, E.P. MENZEL, F. WULSCHNER, L. ZHONG, A. MARX, R. GROSS, Walther-Meissner-Institute and TU Munich, Garching, Germany — The persistent current flux qubit is a Josephson junction based superconducting circuit exhibiting a strong anharmonicity in combination with excellent coherence times of more than $10\ \mu\text{s}$. However, quantum coherence decreases drastically away from an optimal point and a controlled design of the transition frequency at this point is demanding with respect to fabrication stability. Here, we present the spectroscopic analysis of a gradiometric flux qubit, where the tunnel coupling can be tuned from a few hundreds of Megahertz to several Gigahertz.

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