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Engineering Filters for Reducing Spontaneous Emission in cQED<sup>1</sup> NICHOLAS BRONN, NICHOLAS MASLUK, SRIKANTH SRINIVASAN, JERRY CHOW, DAVID ABRAHAM, MARY ROTHWELL, GEORGE KEEFE, JAY GAM-BETTA, MATTHIAS STEFFEN, CHRIS LIRAKIS, IBM TJ Watson Research Center — Inserting a notch filter between a qubit and the external environment at the qubit frequency can significantly suppress spontaneous emission mediated by the cavity ("Purcell effect"). In order to realize this filtering in multi-qubit architectures, where space comes at a premium, we will present a filter with minimal space requirements.

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