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Josephson-junction based circuits for coupling 3D cavity modes ADAM SIROIS, NIST-Boulder, University of Colorado-Boulder, MANUEL CASTELLANOS-BELTRAN, MICHAEL DEFEO, LEONARDO RANZANI, RAY-MOND SIMMONDS, JOHN TEUFEL, JOSE AUMENTADO, NIST-Boulder — Superconducting three-dimensional cavities provide an electromagnetically isolated (high-Q) platform for superconducting quantum information research. Yet, future quantum technologies will require quantum states to be shared or swapped between nearby cavities — for example between storage and measurement modes. We discuss strategies for coherently swapping states between cavities using Josephson-junction based coupling elements.

 ${\bf Adam~Sirois}$ NIST-Boulder, University of Colorado-Boulder

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