Abstract Submitted
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Series-parallel two dimensional arrays of $YBa_2Cu_3O_{7-\delta}$ thin film ion damage Josephson junctions[1] JASPER DRISKO, SHANE CYBART, STEVEN ANTON, STEPHEN WU, JAMES PARKER, ROBERT DYNES, University of California, Berkeley — We have fabricated a number of series-parallel two dimensional arrays of $YBa_2Cu_3O_{7-\delta}$ thin film ion damage Josephson junctions. The arrays contain 1,000 to 15,000 Superconducting QUantum Interference Devices (SQUIDs) in different dimensional configurations and different SQUID area distributions. We have measured the electrical transport characteristics of each array and compare it to computer simulations based on the resistively shunted junction model to investigate the effect of mutual inductance between the SQUIDS within the array. We find there is good agreement between our simulation model and our experimental device when the parallel dimension of the device is less than 15 SQUIDs.

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