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Zero Flux Anomaly in Mesoscopic Normal Metals JULIE BERT, HENDRIK BLUHM[1], NICHOLAS KOSHNICK, Stanford University, MARTIN HUBER, University of Colorado Denver and NIST, KATHRYN MOLER, Stanford University — Our recent scanning SQUID susceptometry measurements of individual mesoscopic normal metal rings found persistent currents consistent with theoretical predictions. In addition to the persistent current signal, all rings exhibited a step anomaly in the SQUID response vs flux around zero applied flux and a large paramagnetic linear susceptibility. We present the characteristics of the zero flux anomaly observed in multiple rings and thin films and explore possible explanations. Key features include a notable frequency dependence between 11 and 333 Hz and a strong spatial correlation with the large paramagnetic spin signal.

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