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Anomalous magnetic moments as evidence of chiral superconductivity in Bi/Ni bilayer LI LU, JUNHUA WANG, Institute of Physics, Chinese Academy of Sciences, Beijing 100190, People's Republic of China, XINXIN GONG, State Key Laboratory of Surface Physics and Department of Physics, Fudan University, Shanghai 200433, People's Republic of China, GUANG YANG, ZHAOZHENG LYU, YUAN PANG, GUANGTONG LIU, ZHONGQING JI, JIE FAN, XIUNIAN JING, CHANGLI YANG, FANMING QU, Institute of Physics, Chinese Academy of Sciences, Beijing 100190, People's Republic of China, XIAOFENG JIN, State Key Laboratory of Surface Physics and Department of Physics, Fudan University, Shanghai 200433, People's Republic of China — There have been continuous efforts in searching for unconventional superconductivity over the past five decades. Compared to the well-established d-wave superconductivity in cuprates, the existence of superconductivity with other high-angular-momentum pairing symmetries is less conclusive. Bi/Ni epitaxial bilayer is a potential unconventional superconductor with broken time reversal symmetry (TRS), for that it demonstrates superconductivity and ferromagnetism simultaneously at low temperatures. We employ a specially designed superconducting quantum interference device (SQUID) to detect, on the Bi/Ni bilayer, the orbital magnetic moment which is expected if the TRS is broken. An anomalous hysteretic magnetic response has been observed in the superconducting state, providing the evidence for the existence of chiral superconducting domains in the material. [1] Junhua Wang et al., arXiv: 1611.02946v1

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