

## Magnetic field effect in a topological superconducting junction Pb/Ru/Sr<sub>2</sub>RuO<sub>4</sub>

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Sr<sub>2</sub>RuO<sub>4</sub> is a most promising candidate of a spin-triplet superconductor.<sup>1</sup> In addition to its novel spin pairing, a number of experiments and theories suggest the chiral *p*-wave state. Recently, such a state has been attracting great interest as a topological superconducting state.

We study Pb/Ru/Sr<sub>2</sub>RuO<sub>4</sub> junctions, in which Ru normal metal is surrounded by Sr<sub>2</sub>RuO<sub>4</sub>, and find unusual temperature dependence of the critical currents.<sup>2,3</sup> We attribute the behavior to a topological phase mismatch between the *p*-wave superconductivity and the *s*-wave superconductivity in Ru proximity-induced by Pb. In such junctions, spontaneous magnetic flux is expected at the Ru/Sr<sub>2</sub>RuO<sub>4</sub> interface.<sup>4</sup> To clarify the effect of the spontaneous magnetic flux, we focus on the behavior in small magnetic fields.

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