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Superconducting states of topological surface states in β -PdBi₂ investigated by STM/STS KATSUYA IWAYA, RIKEN-CEMS, KENJIRO OKAWA, Tokyo Institute of Technology, TETSUO HANAGURI, YUHKI KOHSAKA, TADASHI MACHIDA, RIKEN-CEMS, TAKAO SASAGAWA, Tokyo Institute of Technology — We investigate superconducting (SC) states of topological surface states in β -PdBi₂ using very low temperature STM. Characteristic quasiparticle interference patterns strongly support the existence of the spin-polarized surface states at the Fermi level in the normal state. A fully-opened SC gap well described by the conventional BCS model is observed, indicating the SC gap opening at the spin-polarized Fermi surfaces. Considering a possible mixing of odd- and even-parity orbital functions in C_{4v} group symmetry lowered from D_{4h} near the surface, we suggest that the SC gap consists of the mixture of *s*- and *p*-wave SC gap functions in the two-dimensional state.

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