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Angle-resolved photoemission study of superconducting cobalt oxide Na_xCoO_2 yH_2O TAKAHIRO SHIMOJIMA, KYOKO ISHIZAKA, SYUNTARO WATANABE, SHIK SHIN, Institute for Solid State Physics, University of Tokyo, TAKAYUKI KISS, TADASHI TOGASHI, The Institute of Physical and Chemical Research, TAKAYOSHI YOKOYA, The graduate school of Natural science and Technology, Okayama University, PETRE BADICA, KAZUYOSHI YAMADA, Institute for Materials Research, Tohoku University, KAZUMASA TOGANO, National Institute for Materials Science, Tsukuba, Japan — Superconducting cobalt oxide Na_xCoO_2 yH_2O is studied by angle-resolved photoemission spectroscopy. We report the Fermi surface topology and electronic structure near the Fermi level in the normal state of Na_xCoO_2 yH_2O. Our result indicates the presence of the hexagonal Fermi surfce centered at Γ point, while the small pocket Fermi surfaces along Γ-K direction are absent, similar to Na_xCoO_2. The top of the e_g' band, which is expected in band calculations to form the small pocket FSs, extends to within ∼30 meV below Fermi level, more closer to Fermi level than in Na_xCoO_2. Its possible role in superconductivity will be discussed, comparing with other experimental and theoretical results.

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