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Determination of t_{2g} Complex in Na_xCoO_2 by Angle-Resolved Photoemission Spectroscopy HONGBO YANG, Brookhaven National Laboratory, JIHUA MA, ZHIHUI PAN, Boston College, ALEXEI FEDOROV, Lawrence Berkeley National Laboratory, JONGYIN JIN, BRIAN SALES, DAVID MANDRUS, Oak Ridge National Laboratory, ZIQIANG WANG, HONG DING, Boston College — A systematic investigation on t_{2g} complex in Na_xCoO_2 is carried by ARPES. By taking advantage of the matrix element effect, we recover and trace the dispersion of all three t_{2g} bands for different Na concentration ($x = 0.3 \sim 0.7$). The dispersion "kink" we observed before is found to be cause by the hybridization between a_{1g} and e'_g bands. This band hybridization forms a narrow band near the Fermi level, which causes a large mass renormalization. The width of the non-hybridized bands is about half of the one predicted by LDA calculations, which is possibly due to the correlation effect.

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