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Metal-insulator transition in $La_{2-2x}Sr_{1+2x}Mn_2O_7$ (x=0.59) revealed by ARPES ZHE SUN, J. F. DOUGLAS, Q. WANG, University of Colorado at Boulder, A. FEDOROV, Y. -D. CHUANG, Advanced Light Source, Lawrence Berkeley National Laboratory, H. ZHENG, J. F. MITCHELL, Argonne National Laboratory, D. S. DESSAU, University of Colorado at Boulder — Using angle-resolved photoemission spectroscopy (ARPES), we studied the metal-insulator transition of $La_{2-2x}Sr_{1+2x}Mn_2O_7$ (x=0.59). Below T_C, there is significant metallic weight at the Fermi level, while a gap opens above T_C, in excellent agreement with resistivity measurements. We also found that in this compound the metal-insulator transition is associated with a remarkable coherent-incoherent weight transfer from the dispersive band to a non-dispersive feature over a large energy scale. The band dispersion also shows an unusual change with increasing temperature, suggesting complicated interactions in this material.

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