

Abstract Submitted
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Far-infrared spectroscopy of magnetic-field-induced pairbreaking in superconducting thin films¹ XIAOXIANG XI, University of Florida, J. HWANG, Pusan National University, C. MARTIN, D.B. TANNER, University of Florida, G.L. CARR, Brookhaven National Laboratory — A magnetic field will break the time-reversal symmetry of the superconducting condensate pairing, giving rise to a pair-breaking effect. This pairbreaking has been confirmed by our recent far-infrared transmission and reflection measurement of a superconducting NbTiN thin film in an in-plane magnetic field. The complex optical conductivity was extracted, and the optical gap was obtained from its real part. Comparison with the pair-breaking theory of Abrikosov and Gor'kov yields good quantitative agreement, confirming directly the theory's validity for the optical conductivity.

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