Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

A broadband microwave study of the superconducting fluctuations in 2D InOx thin films WEI LIU, Johns Hopkins University, MINSOO KIM, TAILUNG WU, SAMBANDAMURTHY GANAPATHY, SUNY-Buffalo, PETER ARMITAGE, Johns Hopkins University — We apply a broadband microwave 'Corbino' spectrometer covering the range from 10MHz to 20GHz to the study of 2D disordered superconducting InOx thin films. Explicit frequency dependency of the superfluid stiffness and conductivity are obtained down to 270mK. The AC measurements are sensitive to different time scales of the superconducting fluctuations. A number of fluctuation regimes are investigated (gaussian fluctuations, vortex proliferation) as we cool the sample into the low-temperature Kosterlitz-Thouless-Berezinskii- like phase. We discuss our results in terms of prevailing scenarios for fluctuation superconductivity and make connection to other experimental results.

Wei Liu
Johns Hopkins University

Date submitted: 20 Nov 2008 Electronic form version 1.4