

Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

High frequency scanning SQUID microscope¹ CONSTANTINE VLAHACOS², SOUN PIL KWON, JOHN MATTHEWS, FREDERICK WELLSTOOD, University of Maryland — One important application of scanning SQUID microscopes is to fault detection in integrated circuits and multi-chip modules. However, the present generation of computer processors operate at over 1 GHz, well above the bandwidth of the present generation of SQUID microscopes. We present results for a 4.2 K scanning SQUID microscope with a bandwidth in the GHz range. We have overcome the bandwidth limitations of traditional scanning SQUID microscopes by removing the main bandwidth limiter the conventional flux-locked loop electronics - and using instead a pulsed sampling technique with a hysteretic SQUID. We describe the overall design and operation of our system, and present high-speed measurement results.

¹Supported by CSR and LPS

²also of Laboratory for Physical Sciences

John Matthews
University of Maryland

Date submitted: 01 Dec 2004

Electronic form version 1.4