

Abstract Submitted
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High Frequency Flux Sampling SQUID Microscope¹ C.P. VLACHOS, Laboratory for Physical Sciences and University of Maryland, J. MATTHEWS, S.P. KWON, F.C. 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 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 dc SQUID. We present time-varying magnetic field images obtained with the 4.2 K cryocooled microscope with a time-resolution below 1 nanosecond, and discuss the advantages and limitations of this method.

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