Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

High frequency flux sampling SQUID microscope[1] CONSTANTINE VLAHACOS[2], CNAM, Department of Electrical and Computer Engineering, University of Maryland College Park and the Laboratory for Physical Sciences, JOHN MATTHEWS, Physical Optics Corporation, FREDERICK WELLSTOOD, Center for Nanophysics and Advanced Materials, Physics Department, University of Maryland College Park — One important application of scanning SQUID microscopes is to locate electrical faults in integrated circuits and multi-chip modules. However, current computer microprocessors operate at over 1 GHz, well above the bandwidth of the present generation of SQUID microscopes. By removing the conventional flux-locked loop electronics we have overcome the bandwidth limitations of traditional scanning SQUID microscopes. Instead we use a pulsed sampling technique with a small Nb/AlO$_x$/Nb hysteretic dc SQUID. We present time-varying magnetic field images of room temperature samples obtained with the SQUID mounted on a 4.2 K pulse tube refrigerator in a scanning SQUID microscope, and discuss the advantages and limitations of this method.

[1]This work was funded by the Center for Nanophysics and Advanced Materials and the Laboratory for Physical Sciences
[2]Center for Nanophysics and Advanced Materials

Constantine Vlahacos
University of Maryland College Park and Laboratory for Physical Sciences

Date submitted: 27 Nov 2007 Electronic form version 1.4