Abstract Submitted
for the APR09 Meeting of
The American Physical Society

Bolometric Interferometry for Cosmic Microwave Background Polariztion Measurements[1] SIDDHARTH MALU, IUCAA, Pune, India, MILLIMETER-WAVE BOLOMETRIC INTERFEROMETER COLLABORATION — CMB studies are now a data-rich field in astrophysics. The power spectrum of CMB is well measured and cosmological models have been characterized and polarization has been detected in the CMB. All results fit well within and are explained well by the inflationary paradigm. But current evidence for inflation is indirect. The next generation of CMB experiments will aim at providing the most direct evidence for inflation through the detection of B-modes in CMB polarization. Despite improvements in experimental techniques, it is as yet unclear what configuration and approach a CMB polarization experiment should adopt, in view of lack of information about polarization foregrounds and instrument systematic effects. We describe a novel approach to these measurements, called bolometric interferometry, which avoids many of the systematic errors found in imaging systems. In particular, we describe a prototype, the Millimeter-wave Bolometric Interferometer (MBI). We present a few promising approaches from our collaboration (BRAIN/MBI) and discuss plans for feasibility studies for detecting CMB polarization foregrounds and signals with adding interferometers.

[1]NASA, Wisconsin Space Grant Consortium, Sigma-Xi GIAR

Siddharth Malu
IUCAA, Pune, India

Date submitted: 09 Jan 2009 Electronic form version 1.4