

## Array Receivers for CMB with MMIC Technology

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Low noise coherent receivers have been extensively used for measurements of the cosmic microwave background (CMB). Recent experiments using low noise, high electron mobility transistor amplified front-ends include WMAP, BEAST, DASI, CBI, CAPMAP. Coherent detection offers several advantages for CMB measurement, including the ability to modulate signals after amplification, simultaneous measurements of multiple Stokes parameters and direct imaging through interferometry. Advances in monolithic microwave integrated circuit (MMIC) technology have enabled multifunction receiver component integration at the chip or compact module level. This has in turn, created the possibility of array receivers for CMB measurements.

We will discuss the state-of-the-art in MMIC amplifier based technologies as well as instruments under development which will use MMIC integration. We will also discuss the prospects for massive receiver arrays using coherent detection for deep CMB polarization measurements.