

Precise measurement of CMB polarisation from Dome-C: the BRAIN experiment.

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The characterisation of CMB polarisation is one of the next challenges in observational cosmology. This is especially true for the so-called B-modes that are at least 3 orders of magnitude lower than CMB temperature fluctuations. A precise measurement of the angular power spectrum of these B-modes will give important constraints on inflation parameters.

In this talk, I will describe the BRAIN experiments based on bolometric interferometry and dedicated to CMB polarisation measurement. A high rejection of systematic effects is obtained thanks to interferometry technique while the use of low temperature bolometers allows for high sensitivity. This experiment is proposed to be installed in Dome-C, Antarctica, to take advantage of the extreme dryness of the atmosphere and to allow long integration time. A first campaign has been carried out this year at Dome-C to install and test a cryogenic system able to operate automatically during the Antarctic winter. With this system we have also carried out a measurements of the Stokes parameters of atmospheric emission at 145GHz.

