

Large-Scale Anisotropy of the Cosmic Background Radiation at 3 mm

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The large-scale structure of the cosmic background has been measured at 3 mm wavelength using a balloon-borne liquid-helium cooled radiometer. Flights from both hemispheres have achieved a sky coverage of over 85% with very little galactic contamination. Other than a first order dipole and a possible faint galactic contribution, no other structure is apparent. All quadrupole components are 100 μK or less, with errors of 50–80 μK . A 90% confidence level upper limit of 6×10^{-5} RMS is placed on a quadrupole component. A possible detection of galactic dust has been obtained with a cosec (b) (b-galactic latitude) model giving $40 \pm 11 \mu\text{K}$ at the pole. This galactic component contributes less than 100 μK to the quadrupole component. A map of the sky has been prepared.