

CMB Observations from the Antarctic Plateau

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Abstract. CMB studies from the Antarctic Plateau are presented.

1. Introduction

We use the unique properties of the Antarctic Plateau atmosphere for studies of the fine structures of the Cosmic Microwave Background (CMB).

2. Search for CMB fine structures

a) Spectral distortions at decimetric wavelengths. In 1989/1991 we and LBL-Berkeley observed from South Pole (See reference group # 1).

b) Polarization at large angular scales. A correlation polarimeter, tested in Antarctica in 1994 and 1998, now at Testa Grigia, (italian Alps) is ready for observation at Dome C. (See reference Group # 2)

3. Low noise coherent detectors (SIS mixers) and systems

With IEN Galileo Ferraris (Turin) and IRA-CNR Arcetri we: i) fabricate SIS mixers, ii) are preparing MASTER, a three SIS system (94, 220 and 345 GHz), for studies of the Sunyaev Zeldovich effect (Reference group 3).

4. Observational facilities

Participation to: i) proposal for a large sub-mm telescope at South Pole, ii) Working Group for the Antarctic Center for Sub-millimetric Astronomy at Dome C (Reference group #4)

References

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- #2) Sironi, G. et al, 1997: PASP141, 116; Sironi, G. 1999: New Ast. Rev. 43, 263; Sazhin, M.V. and Sironi, G. 1999: New Ast. 4, 215; Sironi, G. et

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- #3) Sironi, G. et al. 1996, *ESA SP-* 388 (219); Battistelli, E.S. et al. 2002: *AIP Conf Proc.* 616, 123; Battistelli, E.S. et al. 2002: *PASA* 19, 123; Tartari, A. et al. 2003: astro-ph/0307166v1
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