DASI Polarimetry

The Usual Suspects

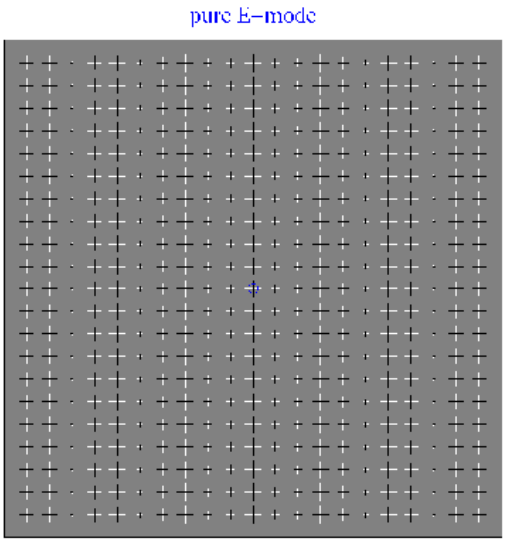
For ITP, Aug 2002

E-mode Polarization (curl free)

Polarization parallel or perpendicular to wave vector

Density (scalar) fluctuations only generate E-Polarization

No curl component
('Stokes' law on closed loop = 0)

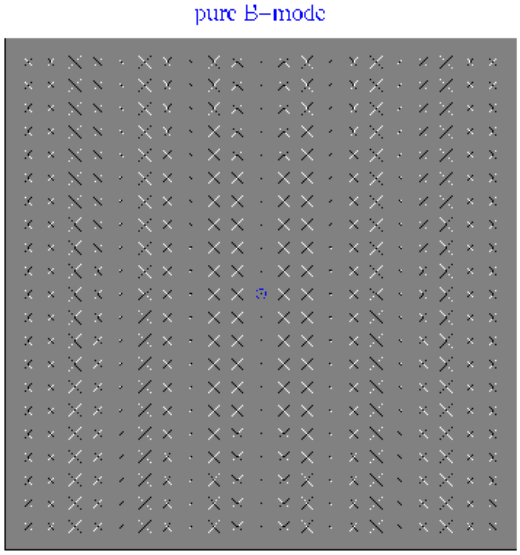


For ITP, Aug 2002

B-mode Polarization (curl component)

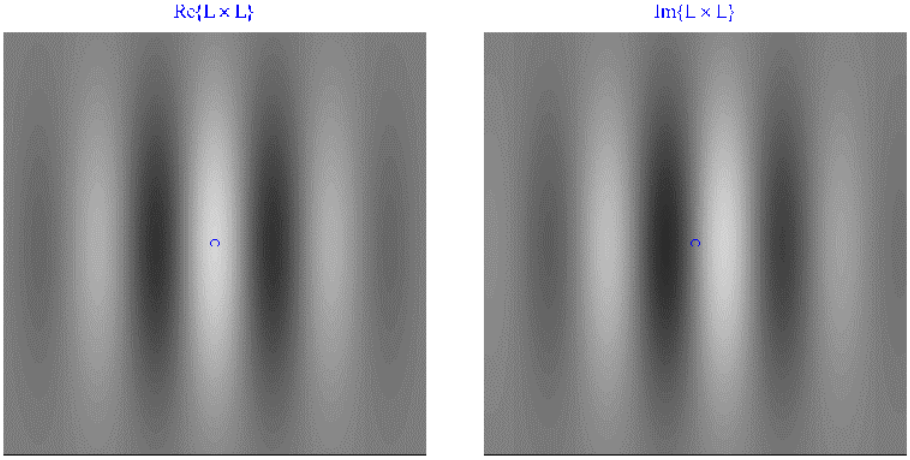
Polarization oriented at 45 degrees to wave vector

Curl component
('Stokes' law on closed loop ≠ 0)



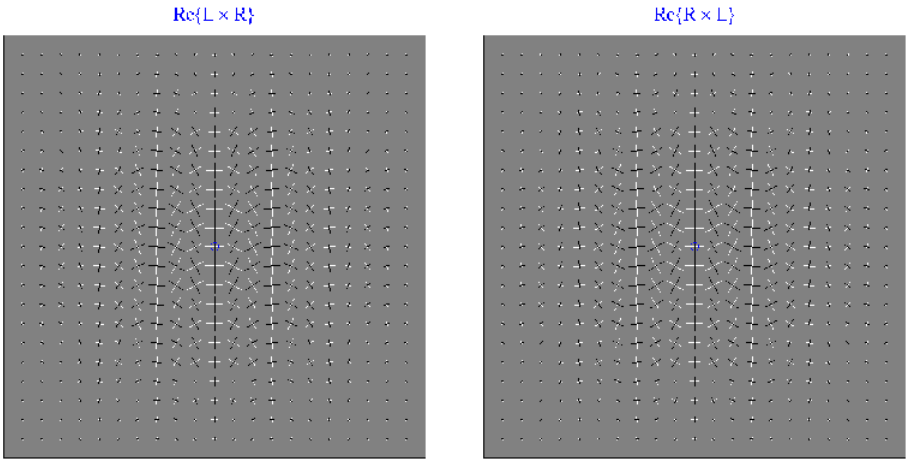
For ITP, Aug 2002

Interferometer Co-Polarization response



For ITP, Aug 2002

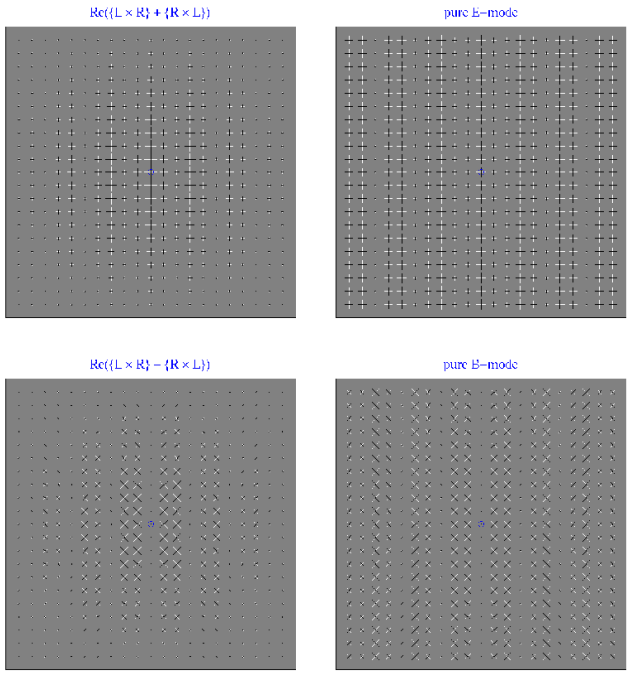
Interferometer ‘cross’ circular polarization response



For ITP, Aug 2002

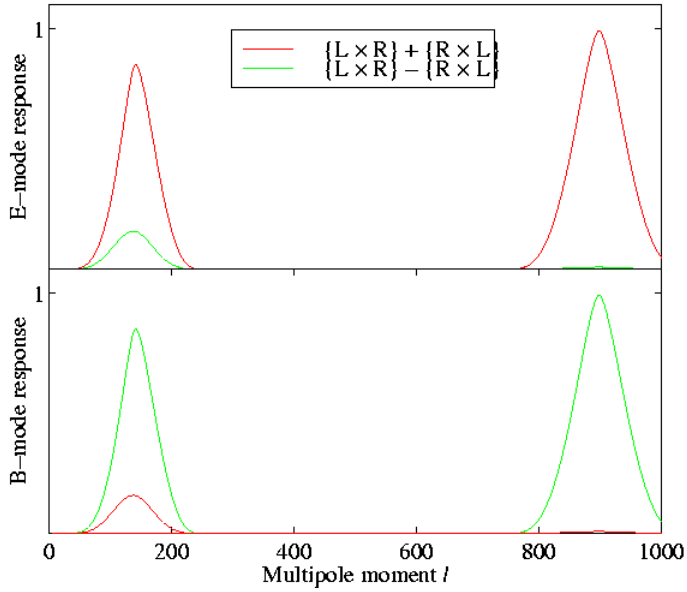
Add →

Subtract →



For ITP, Aug 2002

DASI polarization window functions for two baselines



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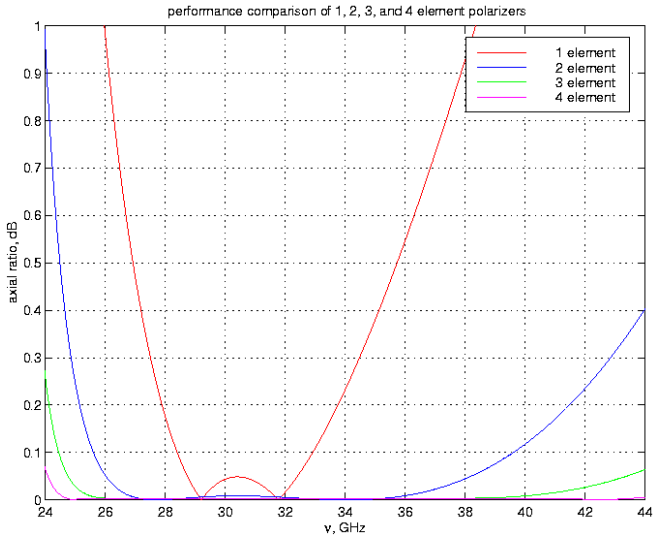
New Broadband Polarizers



For ITP, Aug 2002

John Kovac

Installing at South Pole for 2001 Season

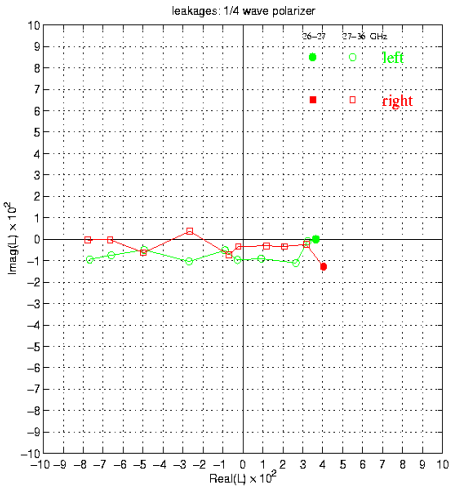
For ITP, Aug 2002

Testing Polarizers at South Pole

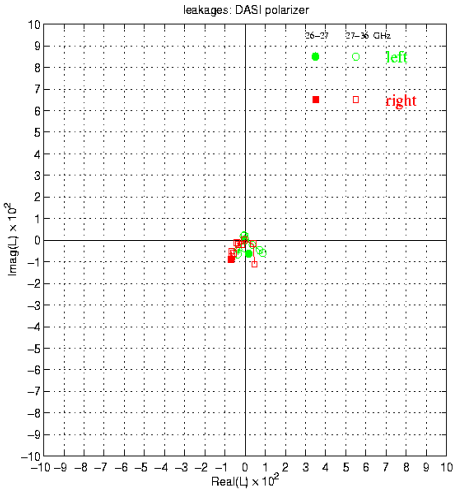
For ITP, Aug 2002

Testing at South Pole - results

Simple ¼ wave retarder



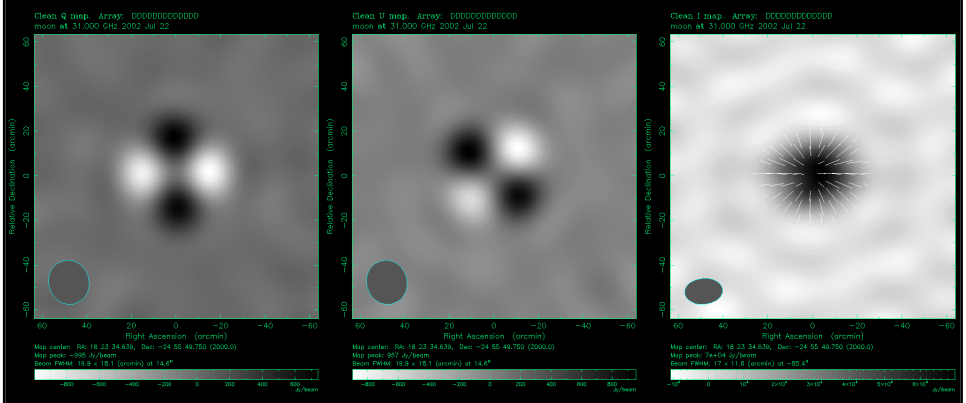
DASI Achromatic polarizer



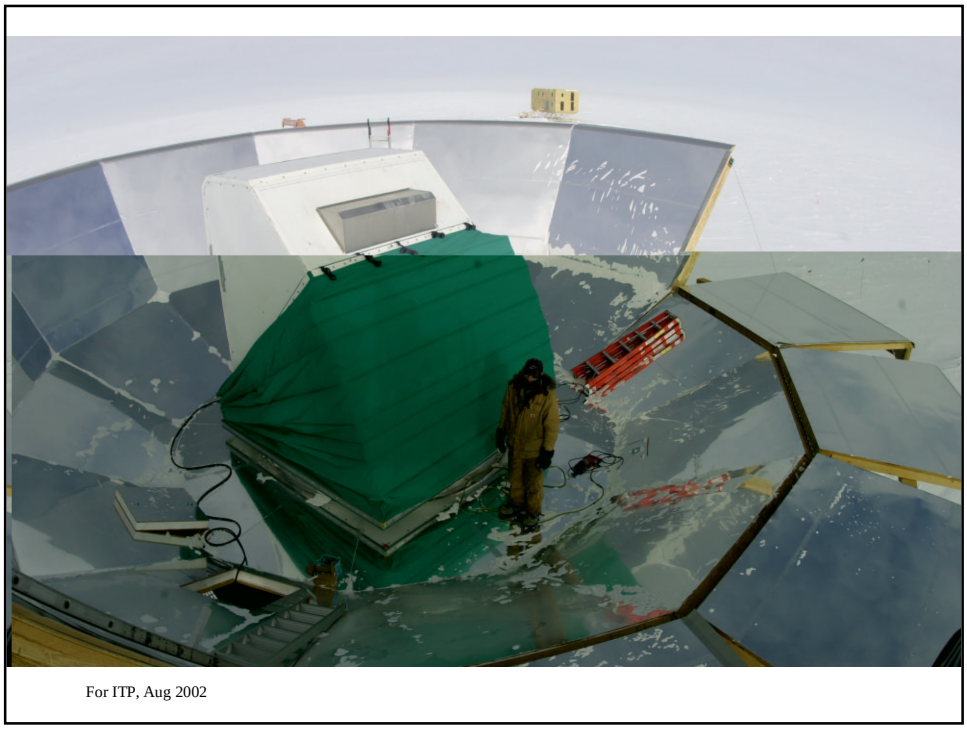
For ITP, Aug 2002

DASI Moon Polarization Maps

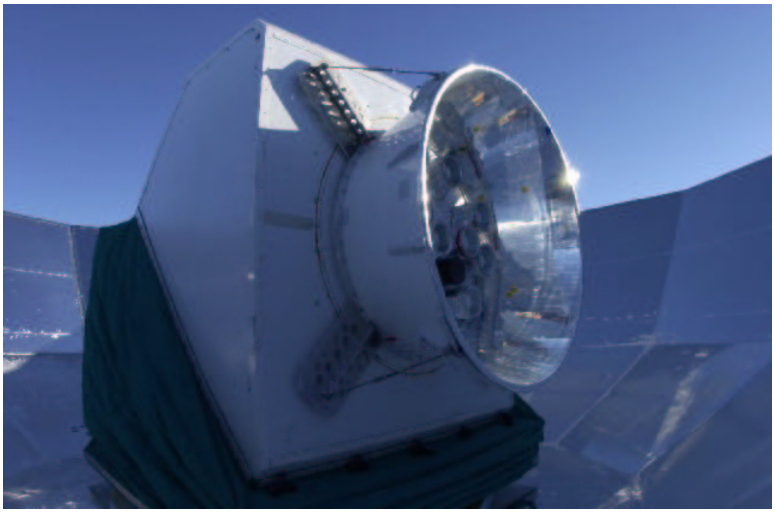
U Q I



DASI January 2001
with new ground shields
Viper/ACBAR


For ITP, Aug 2002

2002: DASI recycles TOPHAT suncreen



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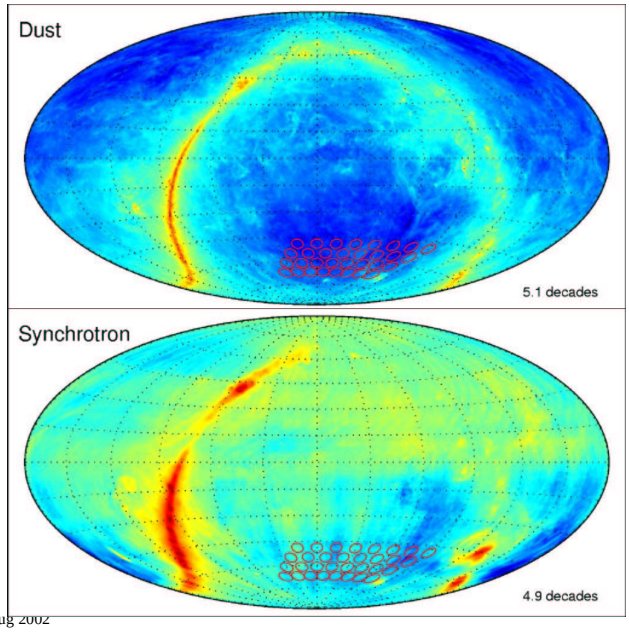
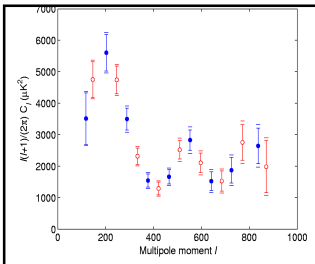
DASI Polarization Field Selection – Pick best two fields

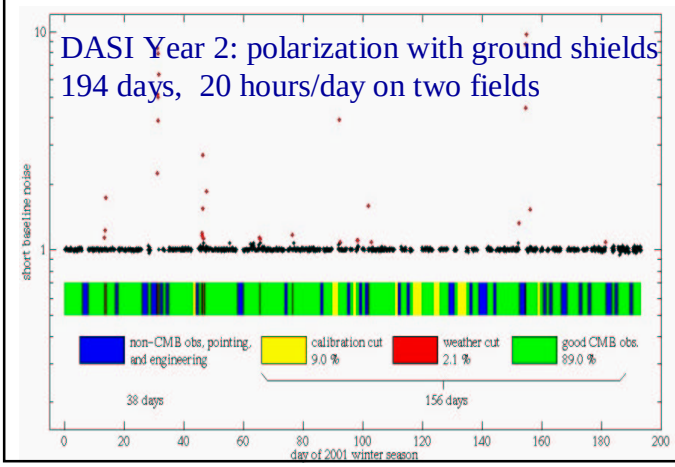


For ITP, Aug 2002

DASI DATA



Year 1: 92 days, 16 hours/day
Temperature data released April 2001



Aug 15, 2002:
Years 2&3:
271 days of polarization data