Hemispherical Power Asymmetry in the Planck Data

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on behalf of the Planck Collaboration

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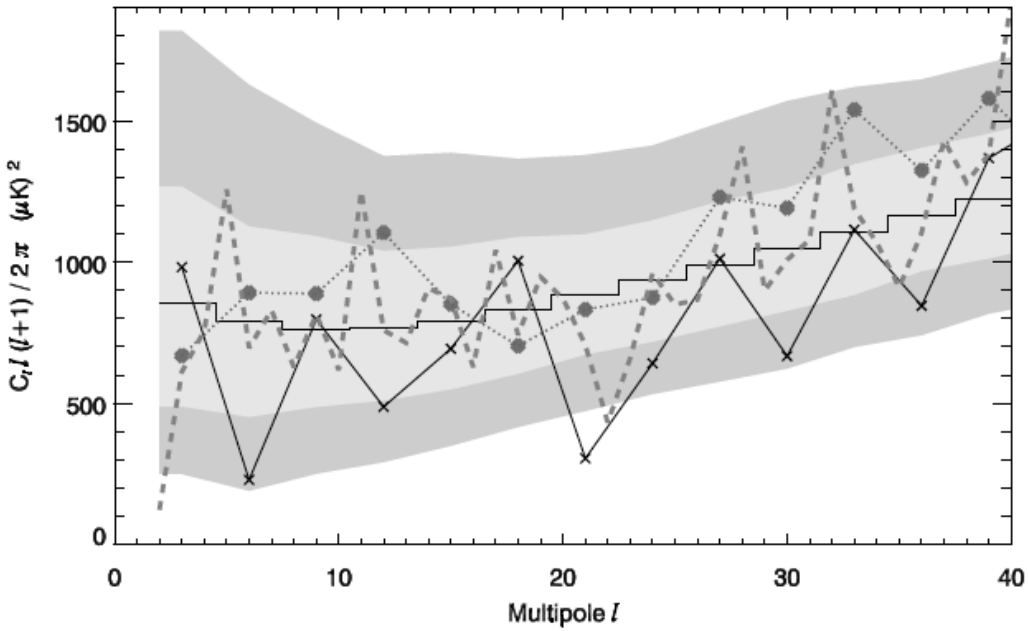
  - Consider only large angular scales, $\ell < 40$
  - Find that Southern ecliptic hemisphere has more power than Northern



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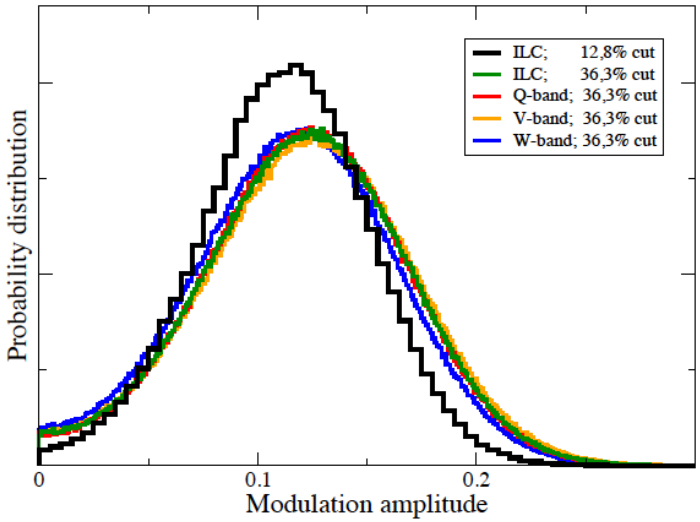

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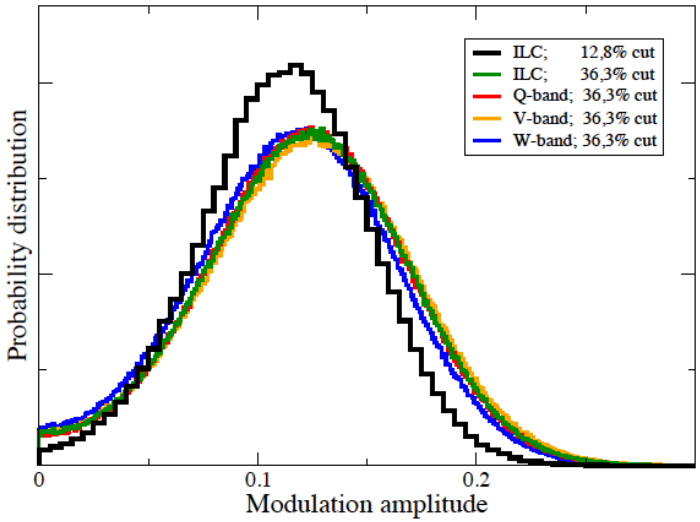

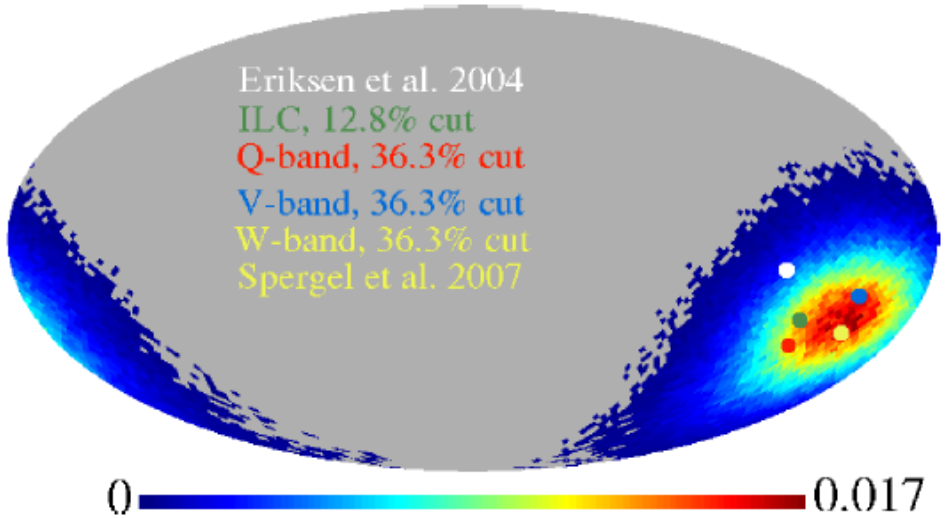

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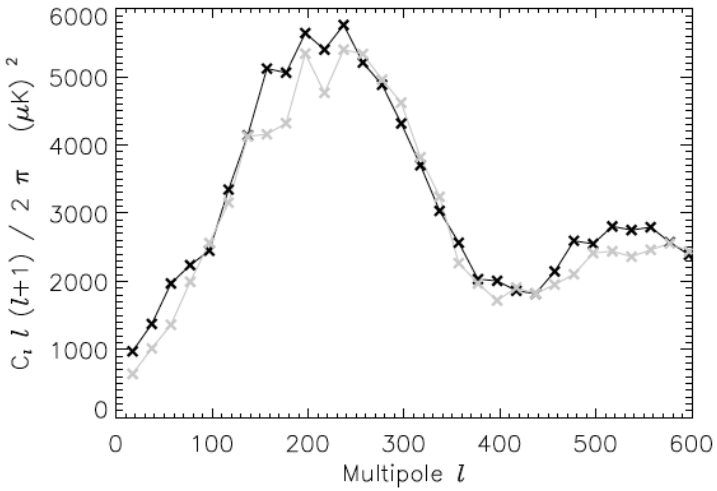

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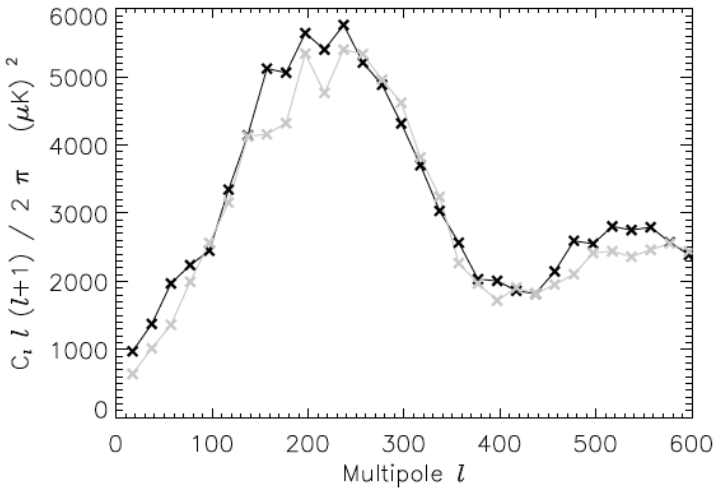

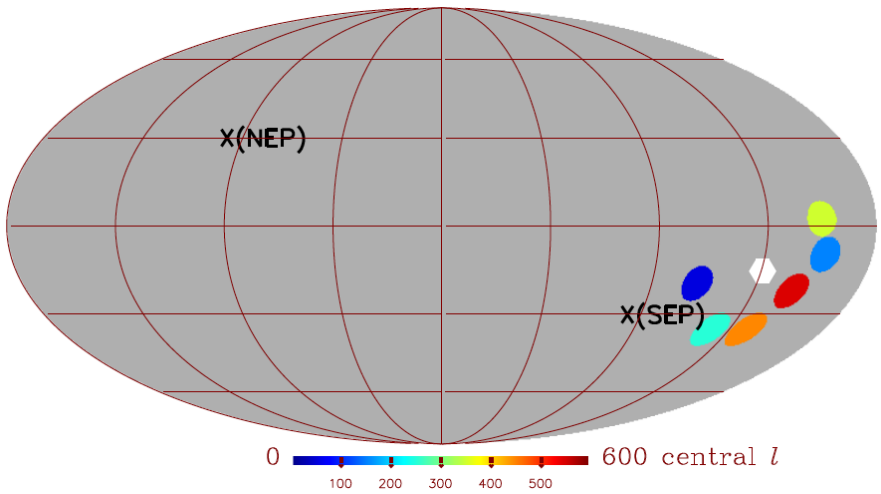

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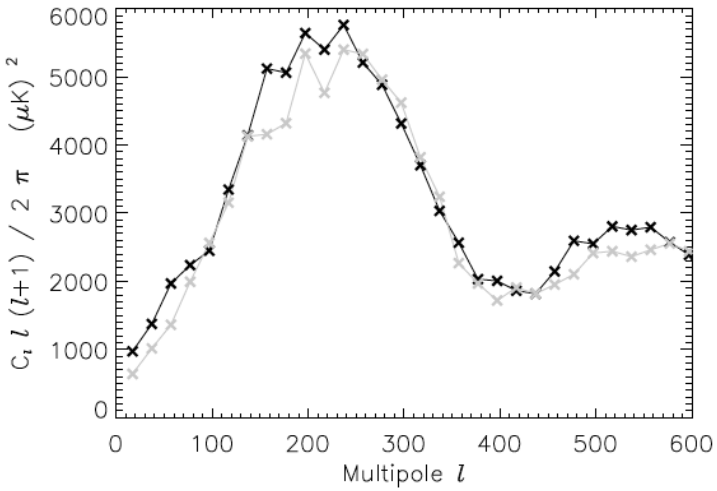

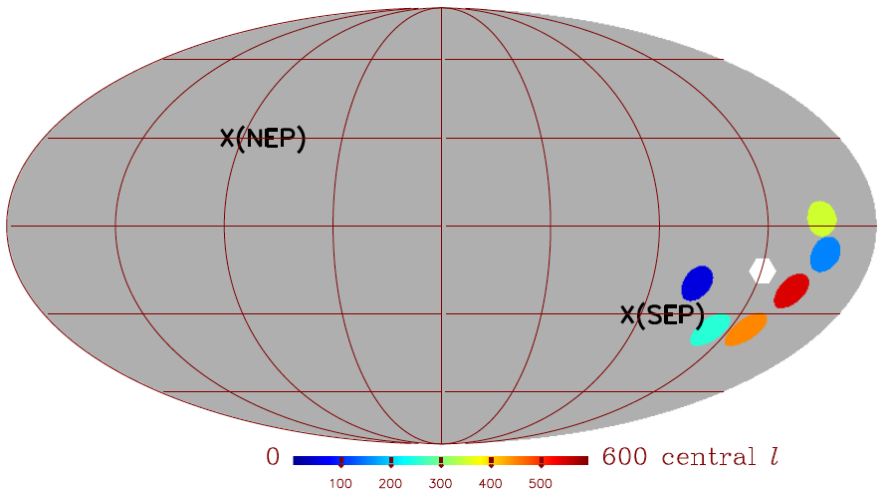

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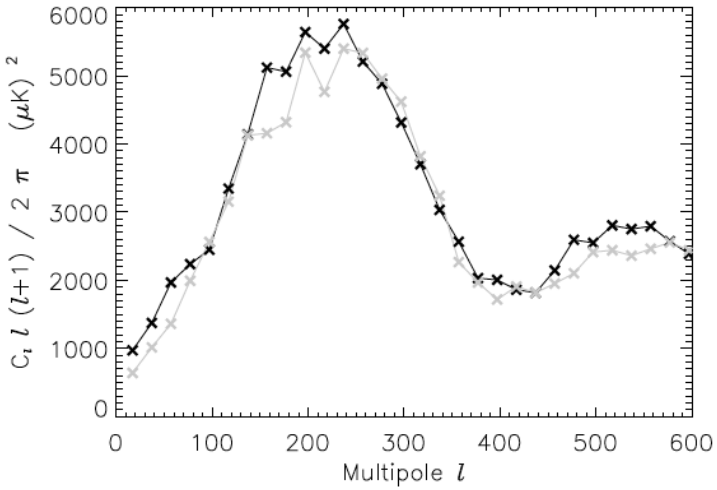

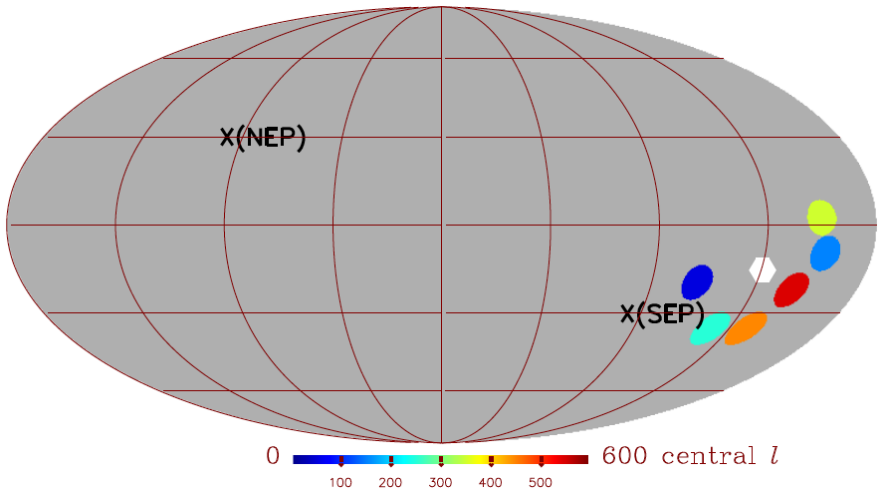

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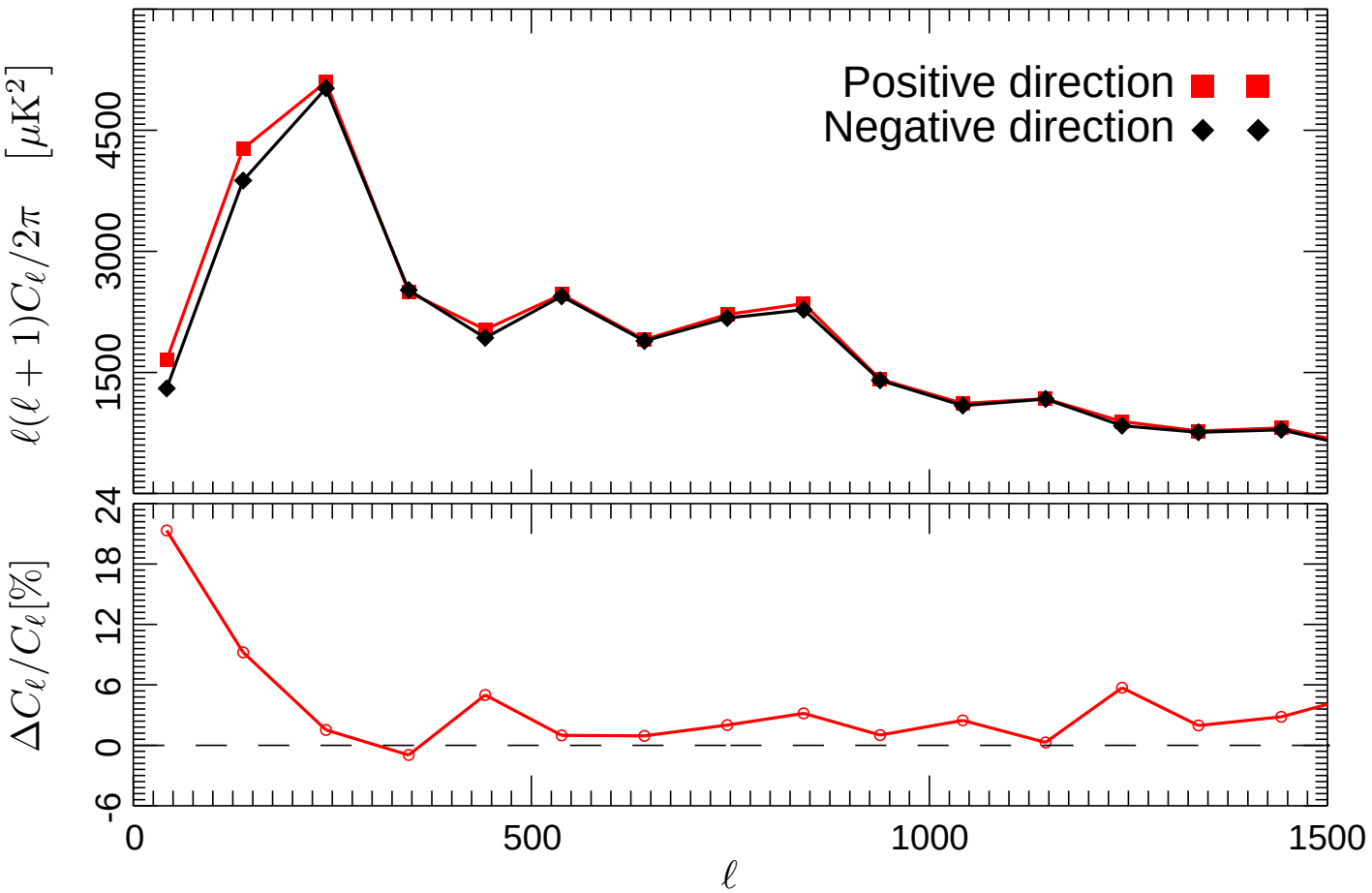
  - Improved foreground subtraction
    - Larger sky fraction

Planck high-ℓ results

Power spectrum computed with $(l, b) = (224°, 0°)$



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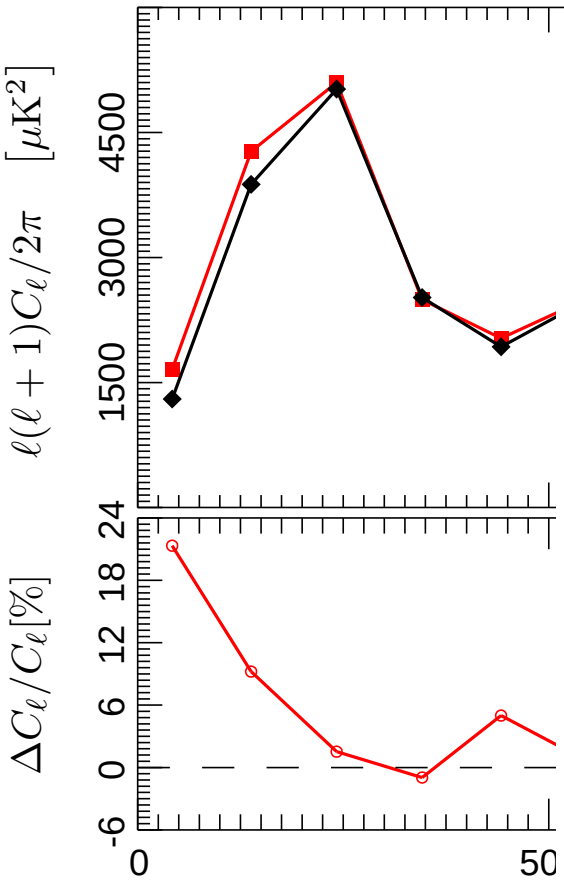
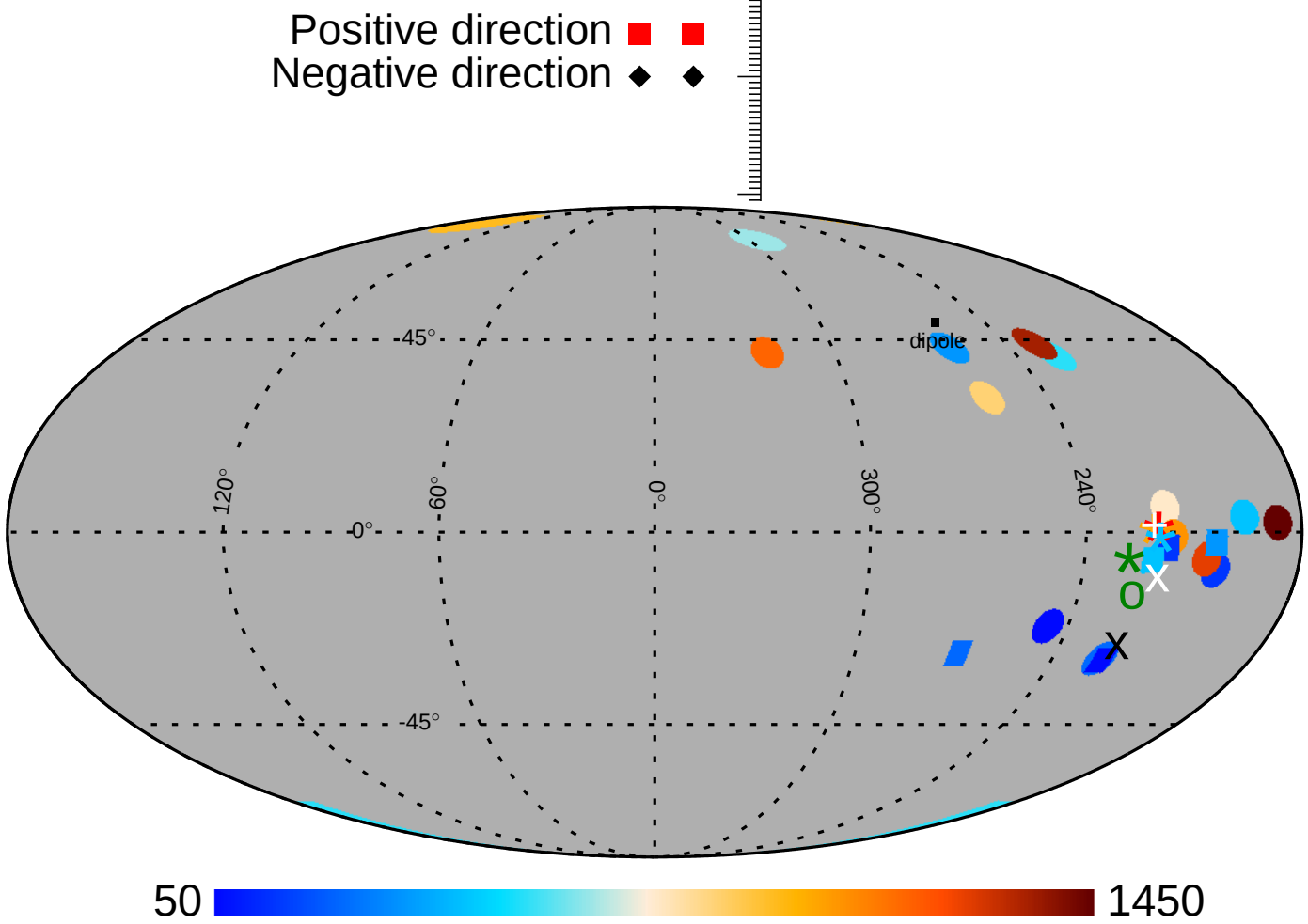
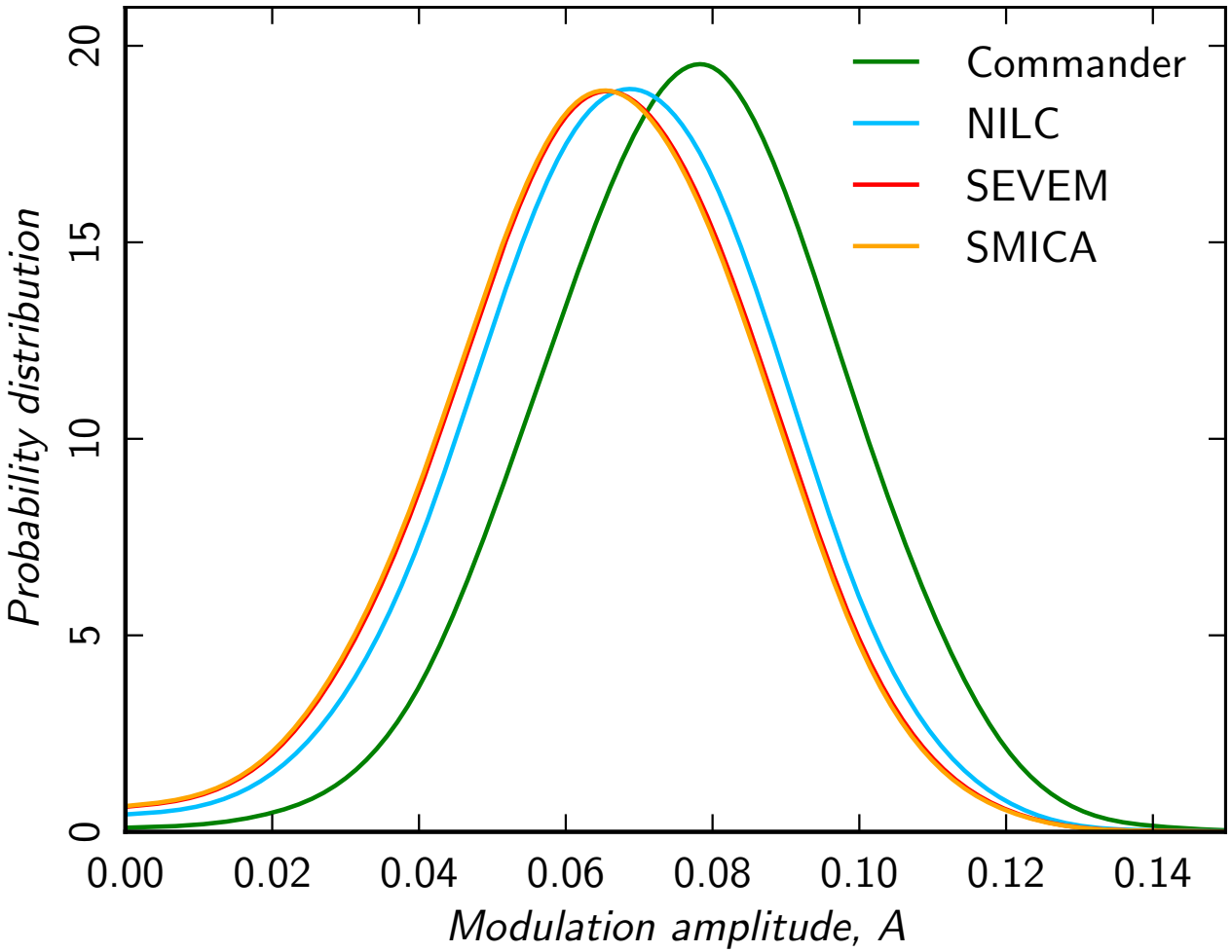




Parametric dipolar model results



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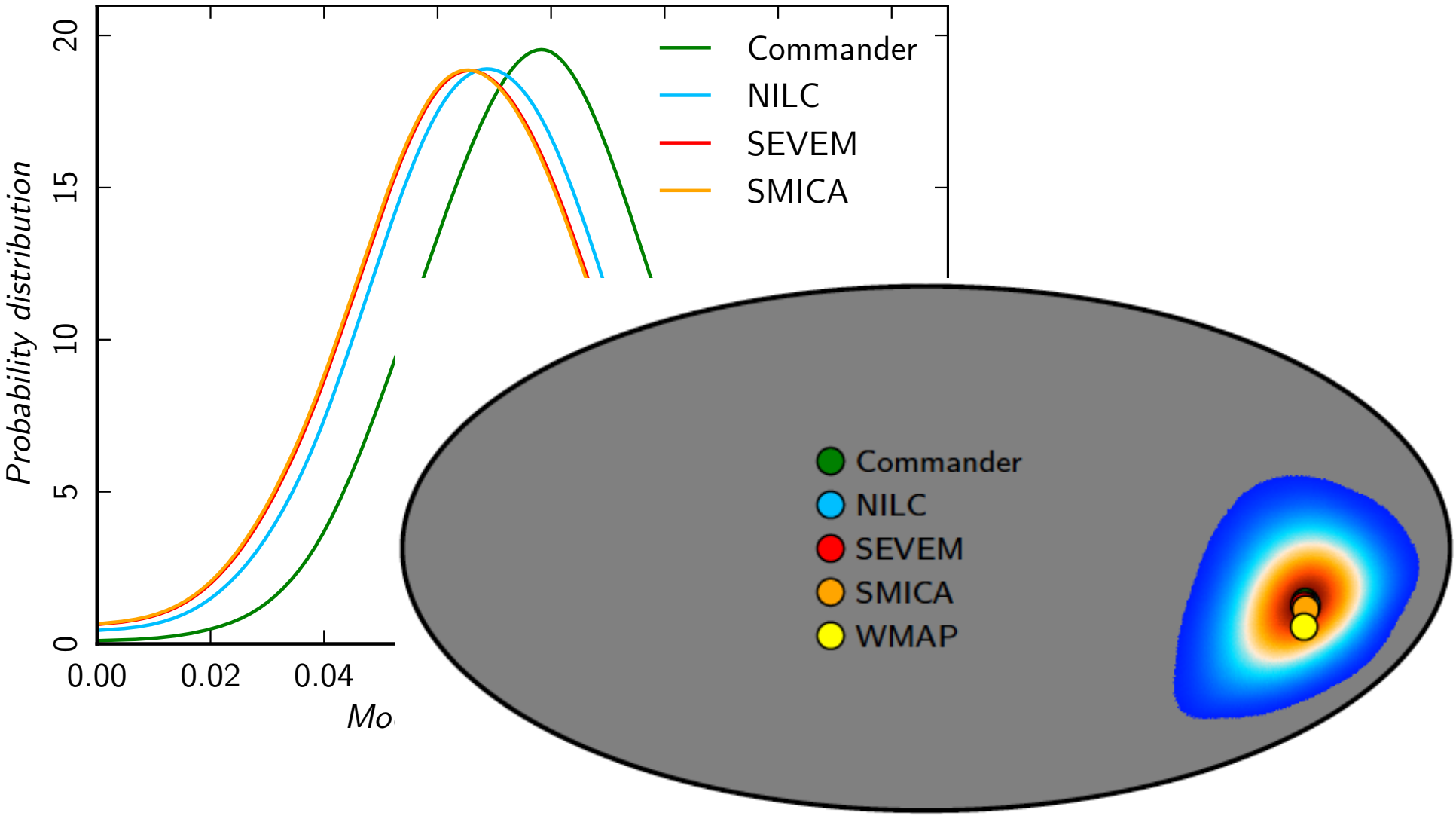
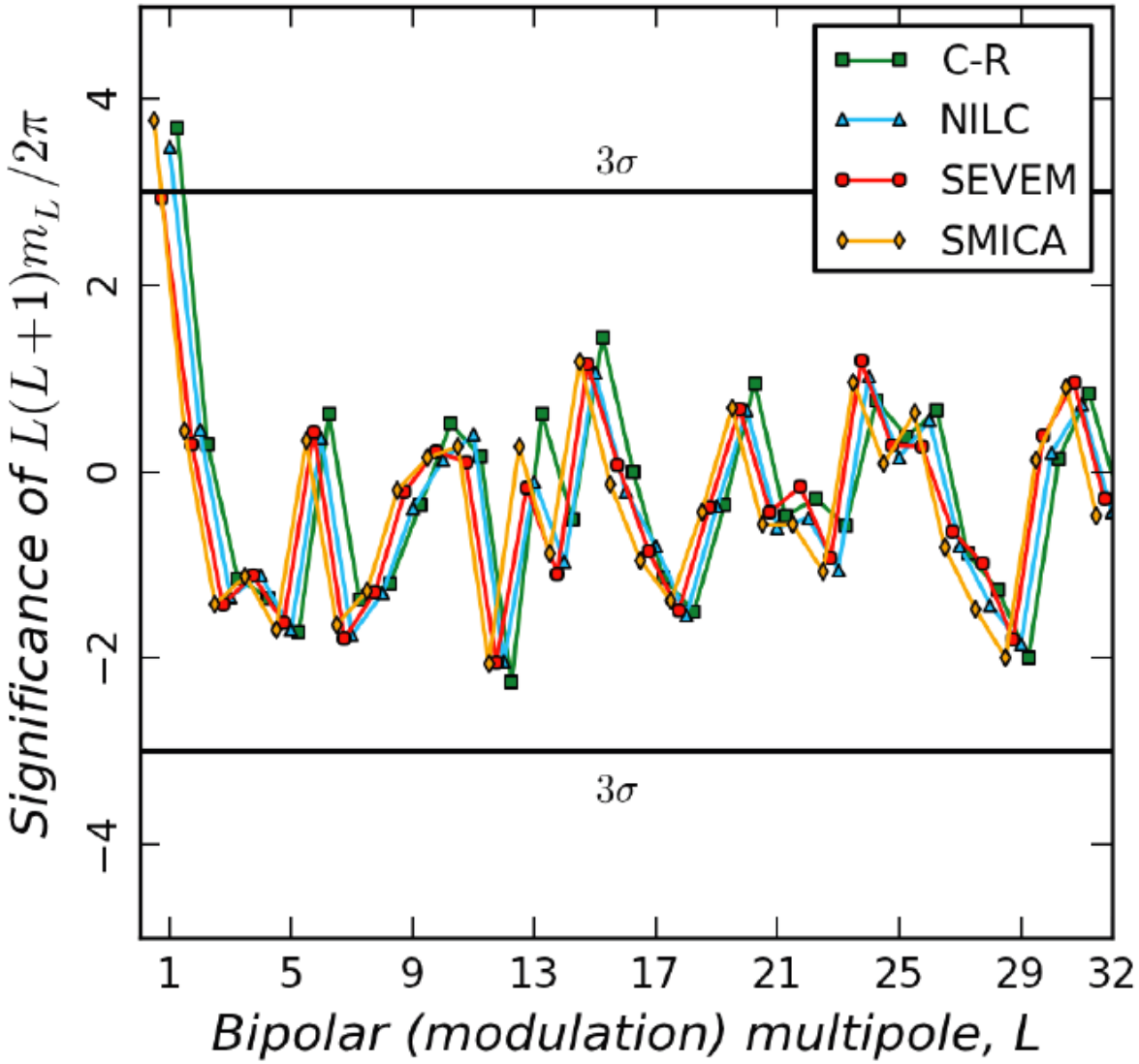


BipoSH results



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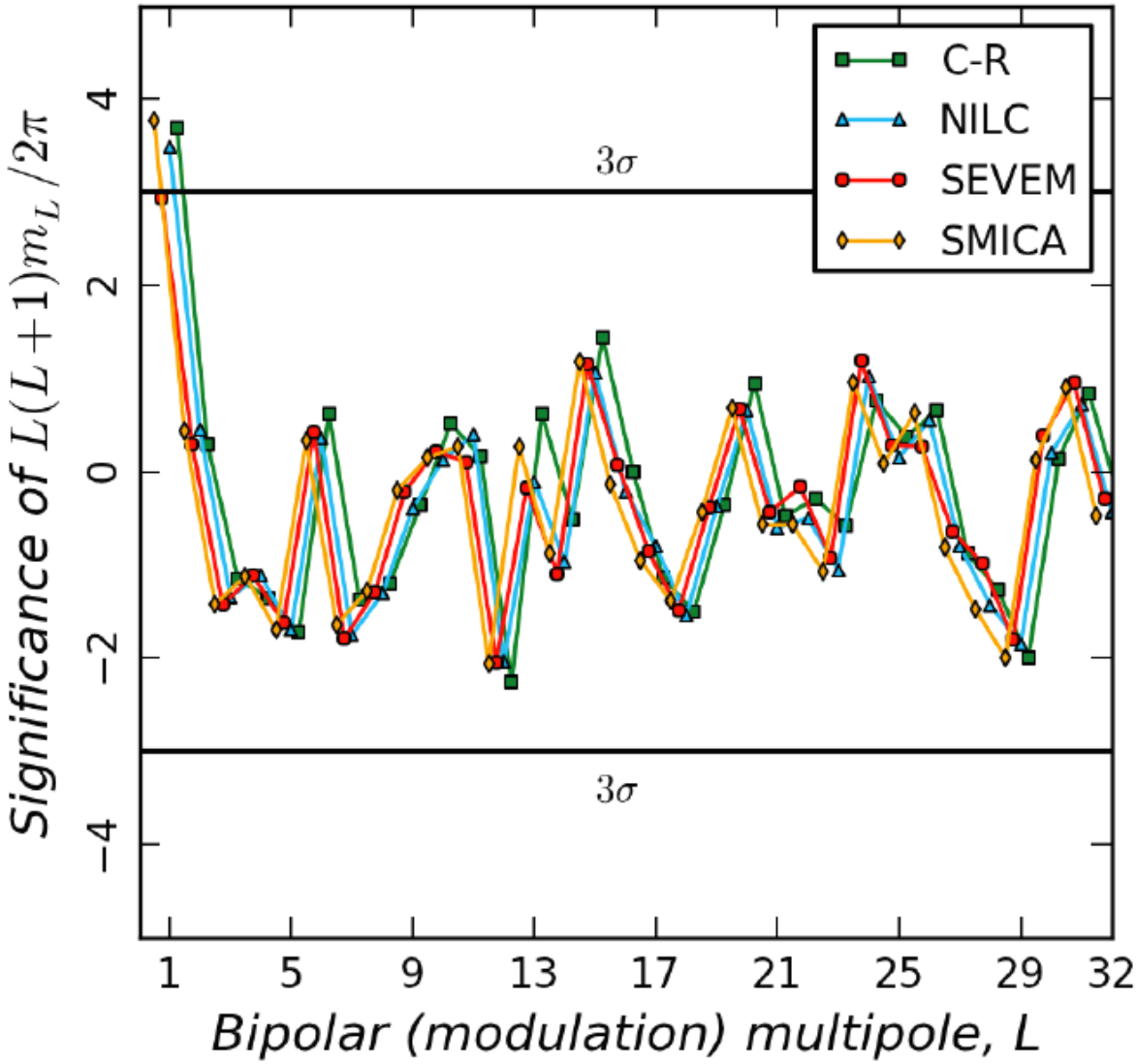

Dipole

$A = 0.078$

$(l, b) = (227°, -15°)$

BipoSH

$A = 0.072$

$(l, b) = (219°, -21°)$

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- Aposteriori interpretation greatly weakened
  - Effect seen at ℓs never before probed, with the same preferred direction as derived for $\ell < 40$

For further details see

Planck 2013 Results. XXIII. Isotropy and Statistics of the CMB

esa
planck
cnes
agenzia spaziale italiana
NASA
cnrs
DTU Space
National Space Institute
INAF
ISTITUTO NAZIONALE DI ASTROFISICA
Science & Technology Facilities Council
CSIC
Consejo Superior de Investigaciones Científicas
National Research Council of Italy
GOBIERNO DE ESPAÑA
MINISTERIO DE CIENCIA E INNOVACIÓN
CSA ASC
DLR
Deutsches Zentrum für Luft- und Raumfahrt e.V.
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MAX-PLANCK-GESELLSCHAFT
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LFI
HFI
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a look back to the birth of Universe
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IAP
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ISTITUTO DI ASTROFISICA SPAZIALE E FISICA COSMICA DI BOLOGNA
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Kavli Institute for Cosmology Cambridge
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Les deux infinis
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NÉEL institut
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MANCHESTER
MilliLab
Max-Planck-Institut für Astrophysik
NUI MAYNOOTH
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HAVERFORD
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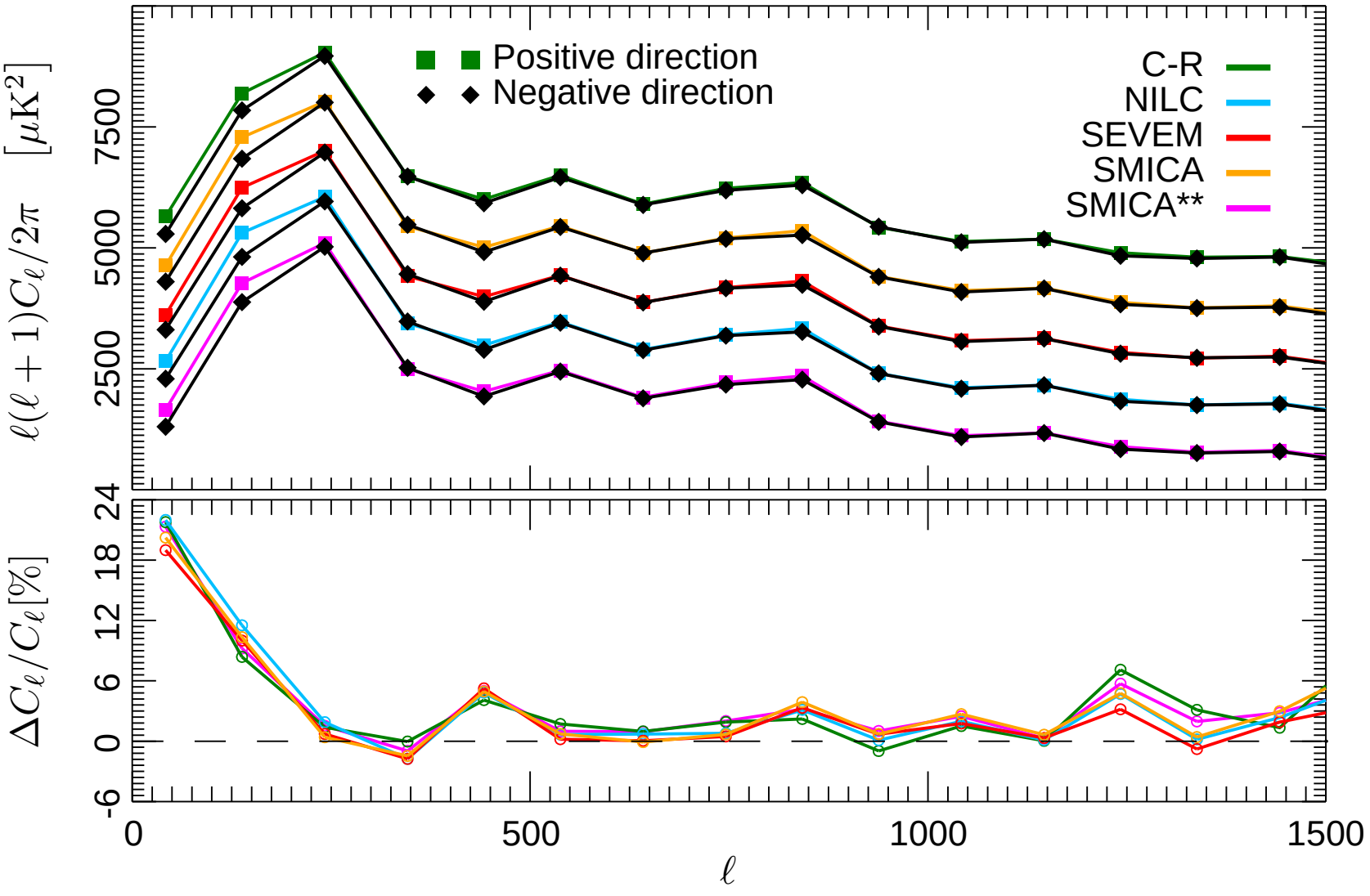
ASI Science Data Center

Extra slide on high-ℓ solutions