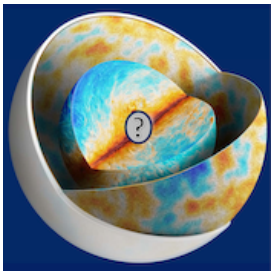

ID de Contribution: **8** Type: **Non spécifié**

Dust polarization spectral dependence from Planck HFI data

mardi 21 juin 2022 14:00 (40 minutes)

The search for the primordial B-modes in the cosmic microwave background (CMB) polarization depends on the separation from the brighter dust foreground signal. In this context, the characterization of the spatial variations of the spectral energy distribution (SED) of thermal dust in polarization has become a critical subject of study.
This contribution aims at presenting a power spectra analysis of Planck data, which improves on previous studies by using the newly released SRoll2 maps that better correct systematic effects, and by extending the analysis to regions near the Galactic plane. Our analysis focuses on the lowest multipoles between l = 4 , and 32, and three sky areas with sky fractions of fsky = 80%, 90%, and 97%. The mean dust SED for polarization and the 353 GHz Q and U maps are used to compute residual maps at 100, 143 and 217 GHz, highlighting spatial variations of the dust polarization SED. Residuals are detected at the three frequencies for the three sky areas. The power spectra show that models based on total intensity data are underestimating by a significant factor the complexity of dust polarized CMB foreground. This analysis emphasizes the need to include variations of polarization angles in simulations of the dust polarized CMB foreground and the importance to consider the geometrical properties of the polarization. The frequency dependence of the EE and BB power spectra of residual maps yields further insight, suggesting that a significant refinement to dust modeling will be needed to ensure an unbiased detection of the CMB primordial B-modes at the precision required by future CMB experiments.

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