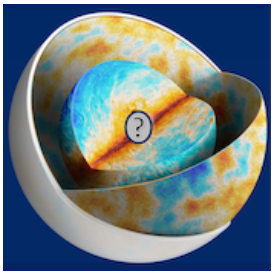

ID de Contribution: **6** Type: **Non spécifié**

New model of Planck polarized dust maps using Cross Wavelet Scattering Transform

mardi 21 juin 2022 09:30 (40 minutes)

The fine measurement of the polarized emission of the CMB is intimately linked to the ability to separate it from the Galactic foregrounds. A specific difficulty for this goal is to take into account the spatial non-Gaussian structure of these foregrounds. In this work, we propose a new method that is able to extract the non-Gaussian features of the galactic dust emission from noisy observations, that we apply to a full-sky map from the SRoll2 HFI-Planck data at 353Ghz. This method introduces in particular the Cross Wavelet Scattering Transform (CWST). These statistics, which are able to characterize non-Gaussian statistical dependencies between different processes, play a crucial role in extracting the features of the dust emission from two half-missions with different noise realizations. This statistical separation of components allows to recover the statistics of the dust emission, including its non-Gaussian properties, until close to lmax~800, where the noise dominates in power by a factor 100 in power spectrum (fsky=0.5), as well as to generate new realizations of the foregrounds with reproduce these statistical properties up to the same scale. Thanks to their realistic non-Gaussian features, we expect these new models of galactic dust emission to play a strategic role for future CMB analyses.

Auteurs principaux: Dr ALLYS, Erwan (LPENS); Dr DELOUIS, Jean-Marc (LOPS)

Co-auteur: BOULANGER, Francois (LPENS)

Orateur: Dr ALLYS, Erwan (LPENS)

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