

# DEFORMATION THEORY OF HOPF ALGEBRAS APPEARING IN COMBINATORIAL PHYSICS

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ABSTRACT. The original Hopf algebra inherent to the pre-Feynman diagrams (LDIAG) of the Quantum Field Theory of Partitions (QFTP) admits a three-parameter deformation. It turns out that the two first parameters (deformation of the structure of algebra) are of different nature : the first is due to the deformation of the (tensor) space by a commutation factor and the second to a perturbation of the comultiplication. The very general tools for deformation are detailed (coloured products, dual laws, diagonal deformation, Swedler's duals). As a byproduct, one gets an unexpected deformation of the Euler-Zagier sums.

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