

Une théorie locale des polylogarithmes

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Extending the Eulerian functions, we study their relationship with zeta function of several variables. In particular, starting with Weierstrass factorization theorem (and Newton-Girard identity) for the complex Gamma function, and therefore we get a calculus on new entire functions. To this end, in order to index harmonic sums with computable series, we need to unfold a local theory of polylogarithms and their Taylor expansions at zero.

References

- [1] V.C. Bui, G. H. E. Duchamp, Hoang Ngoc Minh– *Schützenberger’s factorization on the (completed) Hopf algebra of q -shuffle product*, Journal of Algebra, Number Theory and Applications, pp. 191-215, 30, No. 2 ,2013.
- [2] P. Cartier.– *Jacobiennes généralisées, monodromie unipotente et intégrales itérées*, Séminaire Bourbaki, 687 (1987), 31–52.
- [3] Van Chien Bui, Gérard H.E. Duchamp, Quoc Huan Ngô, Vincel Hoang Ngoc Minh and Christophe Tollu– *(Pure) Transcendence Bases in φ -Deformed Shuffle Bialgebras*(22 pp.), 74ème Séminaire Lotharingien de Combinatoire, Haus Schönenberg, Ellwangen (2015).
- [4] Jacques Hadamard, *Théorème sur les séries entières*, Acta Math. Volume 22 (1899), 55-63.