

On the Drinfel'd series

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Abstract

Starting from the equation KZ_3 and its differential Galois group, we describe a group of “associator”, containing the unique Φ_{KZ} (determined by asymptotic conditions). We also exhibit non trivial examples of “associator” with rational coefficients.

- [1] J. Berstel & C. Reutenauer.— *Rational series and their languages*, Springer-Verlag, 1988.
- [2] V.C. Bui, G.H.E. Duchamp, Hoang Ngoc Minh.— *Structure of Polyzetes and Explicit Representation on Transcendence Bases of Shuffle and Stuffle Algebras*, J. of Sym. Comp., 93-111 (2017).
- [3] P. Cartier— *Fonctions polylogarithmes, nombres polyzetes et groupes pro-unipotents*— Séminaire BOURBAKI, 53^{ème}, n°885, 2000-2001.
- [4] Costermans C., Hoang Ngoc Minh.— *Noncommutative algebra, multiple harmonic sums and applications in discrete probability*, J. of Sym. Comp., 801-817 (2009).
- [5] V. Drinfel'd— *On quasitriangular quasi-hopf algebra and a group closely connected with $Gal(\mathbb{Q}/\mathbb{Q})$* , Leningrad Math. J., 4, 829-860, 1991.
- [6] G.H.E. Duchamp, Hoang Ngoc Minh, Q.H. Ngô, *Harmonic sums and polylogarithms at negative multi-indices*, J. of Sym. Comp., 166-186 (2017).
- [7] Furusho, H.— *Pentagon and hexagon equations*, Ann. of Math., Vol. 171 (2010), No. 1, 545-556.
- [8] Furusho, H.— *Double shuffle relation for associators*, Ann. of Math., Vol. 174 (2011), No. 1, 341-360.
- [9] Hoang Ngoc Minh & M. Petitot.— *Lyndon words, polylogarithmic functions and the Riemann ζ function*, Discrete Math., 217, 2000, pp. 273-292.
- [10] Hoang Ngoc Minh, M. Petitot and J. Van der Hoeven.— *Polylogarithms and Shuffle Algebra*, *Proceedings of FPSAC'98*, 1998.
- [11] Hoang Ngoc Minh.— *On a conjecture by Pierre Cartier about a group of associators*, Acta Math. Vietnamica (2013), 38, Issue 3, 339-398.
- [12] G. Racinet.— *Séries génératrices non-commutatives de polyzêtas et associateurs de Drinfel'd*, thèse (2000).
- [13] Reutenauer C.— *Free Lie Algebras*, London Math. Soc. Monographs (1993).