

Bertin, Marie José

Epstein zeta function and Bloch-Wigner dilogarithm. (Fonction zêta d'Epstein et dilogarithme de Bloch-Wigner.) (French. English summary) [Zbl 1278.11072](#)

J. Théor. Nombres Bordx. 23, No. 1, 21-34 (2011).

Summary: We give an expression for $s = 2$ of some normalized Epstein series as Bloch-Wigner dilogarithms of algebraic numbers of $\mathbb{Q}(\sqrt{\Delta})$, for the discriminants Δ associated to the quadratic form.

MSC:

11G55 Polylogarithms and relations with K -theory

11E45 Analytic theory (Epstein zeta functions; relations with automorphic forms and functions)

11R42 Zeta functions and L -functions of number fields

Keywords:

Epstein series; Bloch-Wigner dilogarithm; Dirichlet L -series; Bloch groups of number fields

Full Text: [DOI](#) [EuDML](#)

References:

- [1] M.J. Bertin, \textit{A Mahler measure of a K3 surface expressed as a Dirichlet L-series}. À paraître au Canadian Math. Bulletin. · [Zbl 1273.11152](#)
- [2] L. Bianchi, \textit{Sui gruppi di sostituzioni lineari con coefficienti a corpi quadratici immaginari}. Math. Ann. \textbf{38} (1891), 313-333 et (1892), 332-412.
- [3] S. Bloch, \textit{Applications of the dilogarithm function in algebraic K-theory and algebraic geometry}. Proceedings of the International Symposium in Algebraic Geometry (Kyoto Univ., Kyoto, 1977), 103-114, Kinokuniya Book Store, Tokyo, 1978. · [Zbl 0416.18016](#)
- [4] A. Borel, \textit{Cohomologie de (SL_n) et valeurs de fonctions zêta aux points entiers}. Ann. Scuola Norm. Sup. Pisa Cl. Sci. (4) \textbf{4} (1977), 613-636. · [Zbl 0382.57027](#)
- [5] D.W. Boyd, F. Rodriguez-Villegas & N. Dunfield, \textit{Mahler's measure and the dilogarithm (II)}. ArXiv :math/0308041v2 [math. NT], 21 Nov 2005.
- [6] L. Dickson, \textit{Introduction to the theory of numbers}. Dover, New York, 1957. · [Zbl 0084.26901](#)
- [7] J. Dupont & C. Sah, \textit{Scissors congruences, II}. J. Pure Appl. Algebra \textbf{25} (1982), 159-195. · [Zbl 0496.52004](#)
- [8] A. Goncharov, \textit{Geometry of configurations, polylogarithms, and motivic cohomology}. Adv. Math. \textbf{114} (1995), 197-318. · [Zbl 0863.19004](#)
- [9] D. Grayson, \textit{Dilogarithm computations for (K_3) }. In Algebraic K-theory (Evanston, 1980), ed. E. Friedlander and M. Stein, 168-178, Lecture Notes in Math. \textbf{854}, Springer, Berlin, 1981. · [Zbl 0509.18017](#)
- [10] J. Huard, P. Kaplan & K. Williams, \textit{The Chowla-Selberg formula for genera}. Acta Arith. \textbf{73} (1995), 271-301. · [Zbl 0855.11018](#)
- [11] G. Humbert, \textit{Sur la mesure des classes d'Hermite de discriminant donné dans un corps quadratique imaginaire, et sur certains volumes non euclidiens}. Comptes Rendus (Paris) \textbf{169} (1919), 448-454. · [Zbl 47.0138.01](#)
- [12] W. Neumann & D. Zagier, \textit{Volumes of hyperbolic 3-manifolds}. Topology \textbf{24} (1985), 307-332. · [Zbl 0589.57015](#)
- [13] A.A. Suslin, \textit{ (K_3) of a field, and the Bloch group, Galois theory, rings, algebraic groups and their applications}. Trudy Mat. Inst. Steklov \textbf{183} (1990), 180-199. · [Zbl 0741.19005](#)
- [14] R. Swan, \textit{Generators and relations for certain special linear groups}. Bull. AMS \textbf{74} (1968), 576-581. · [Zbl 0221.20061](#)
- [15] W. Thurston, \textit{The geometry and topology of (3) -manifolds}. Chapter 7 "Computation of volume" by J. Milnor, Princeton Univ. Mimeographed Notes.
- [16] K. Williams, \textit{Some Lambert Series Expansions of Products of Theta functions}. The Ramanujan Journal \textbf{3} (1999), 367-384. · [Zbl 0938.11017](#)
- [17] D. Zagier, \textit{The Dilogarithm Function, Frontiers in number theory, physics, and geometry II}. 3-65, Berlin, Springer, 2007. · [Zbl 1176.11026](#)
- [18] D. Zagier, \textit{Hyperbolic manifolds and special values of Dedekind zeta-functions}. Invent. Math. \textbf{83} (1986), 285-301. · [Zbl 0591.12014](#)

- [19] D. Zagier & H. Gangl, \textit{Classical and elliptic polylogarithms and special values of L-series}. In *The Arithmetic and Geometry of Algebraic Cycles*, Nato Sciences Series C \textbf{548}, 561-615, Kluwer, Dordrecht, 2000. · [Zbl 0990.11041](#)
- [20] I. Zucker & R. McPhedran, \textit{Dirichlet L-series with real and complex characters and their application to solving double sums}. *ArXiv :0708.1224v1 [math-ph]*, 9 Aug. 2007, 1-21.
- [21] I. Zucker & M. Robertson, \textit{A systematic approach to the evaluation of $\sum_{(m,n \neq 0,0)} (am^2 + bmn + cn^2)^{-s}$ }. *J. Phys. A : Math. Gen.*, Vol. \textbf{9}, No. 8 (1976), 1215-1225. · [Zbl 0338.10038](#)

This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.