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Finite difference equations and determinants of integrals of multiform functions. (Equations aux différences finies et déterminants d'intégrales de fonctions multiformes.) (French)

Zbl 0760.39001

Comment. Math. Helv. 66, No. 3, 458-503 (1991).

The aim of the paper is to give a general formula for a determinant whose entries are integrals of the form

$$\int_{\gamma} f_1^{s_1} \dots f_p^{s_p} \omega,$$

where f_i are complex polynomials in n variables, ω is an algebraic n -form and γ are suitable n -cycles. This generalizes previous work of *A. N. Varchenko* [Izv. Akad. Nauk SSSR 53, No. 6, 1206-1235 (1989; Zbl 0695.33004)] and 54, No. 1, 146-158 (1990; Zbl 0699.33004)] who considered the case $\deg f_i = 1$.

The starting point of the theory contained in the present paper is a construction of *K. Aomoto* [J. Fac. Sci., Univ. Tokyo, Sect. I A 22, 271-297 (1975; Zbl 0339.35021)] relating the above integrals to certain finite difference systems.

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MSC:

- [39A10](#) Additive difference equations
- [33E20](#) Other functions defined by series and integrals
- [15A15](#) Determinants, permanents, traces, other special matrix functions
- [58J52](#) Determinants and determinant bundles, analytic torsion

Cited in **19** Documents

Keywords:

[finite difference equations](#); [determinants of integrals of multiform functions](#); [finite difference systems](#)

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