

Katz, Nicholas M.

Algebraic solutions of differential equations (p-curvature and the Hodge filtration). (English)

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For a scan of this review see the [web version](#).

MSC:

- 14D05 Structure of families (Picard-Lefschetz, monodromy, etc.)
- 14-02 Research exposition (monographs, survey articles) pertaining to algebraic geometry
- 34G99 Differential equations in abstract spaces
- 14C30 Transcendental methods, Hodge theory (algebraic-geometric aspects)

Cited in **7** Reviews
Cited in **72** Documents

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

References:

- [1] Atiyah, M., Hodge, W.: Integrals of the second kind on an algebraic variety. *Annals of Math.*62, 56-91 (1955). · [Zbl 0068.34401](#) · [doi:10.2307/2007100](#)
- [2] Bateman Manuscript Project (Erdelyi Ed.): Higher transcendental functions, vol. 1. New-York: McGraw-Hill 1953. · [Zbl 0052.29502](#)
- [3] Cartier, P.: Une nouvelle opération sur les formes différentielles. *C. R. Acad. Sci. Paris*244, 426-428 (1957). · [Zbl 0077.04502](#)
- [4] Cartier, P.: Questions de rationalité des diviseurs en géométrie algébrique. *Bull. Soc. Math. France*86, 177-251 (1958). · [Zbl 0091.33501](#)
- [5] Clemens, H.: Picard-Lefschetz theorem for families of nonsingular algebraic varieties acquiring ordinary singularities. *Trans. Amer. Math. Soc.*136, 93-108 (1969). · [Zbl 0185.51302](#) · [doi:10.1090/S0002-9947-1969-0233814-9](#)
- [6] Deligne, P.: Théorème de Lefschetz et critères de dégénérescence de suites spectrales. *Publ. Math. I. H. E. S.*35, 107-126 (1969). · [Zbl 0159.22501](#)
- [7] Deligne, P.: Cohomologie des intersections complètes. Exposé XI, SGA 7, 1969. Multigraph available from I. H. E. S, 91-Bures-sur-Y vette, France.
- [8] Deligne, P.: Travaux de Griffiths. Exposé 376, Séminaire N. Bourbaki, 1969/1970. *Lectures Notes in Mathematics*180. Berlin-Heidelberg-New York: Springer 1971.
- [9] Deligne, P.: Equations différentielles à points singuliers réguliers. *Lecture Notes in Mathematics*163. Berlin-Heidelberg-New York: Springer 1970.
- [10] Deligne, P.: Théorie de Hodge, *Publ. Math. I. H. E. S.*40 (1971). · [Zbl 0219.14006](#)
- [11] Dwork, B.: P-adic cycles. *Publ. Math. I. H. E. S.*37, 27-115 (1970). · [Zbl 0284.14008](#)
- [12] Goursat, E.: L'Equation d'Euler et de Gauss. Paris: Hermann 1936. · [Zbl 0014.06202](#)
- [13] Goursat, E.: Intégrales Algébriques. Paris: Hermann 1938.
- [14] Griffiths, P.: Periods of integrals on algebraic manifolds: summary of main results and discussion of open problems. *Bull. Amer. Math. Soc.*75, 2, 228-296 (1970). · [Zbl 0214.19802](#) · [doi:10.1090/S0002-9904-1970-12444-2](#)
- [15] Grothendieck, A., Dieudonné, J.: Eléments de géométrie algébrique, *Publ. Math. I. H. E. S.*4, 8, 11, 17, 20, 24, 28, 32.
- [16] Grothendieck, A.: Fondements de la géométrie algébrique. Secrétariat mathématique, 11, rue Pierre Curie, Paris 50, 1962.
- [17] Grothendieck, A.: On the de Rham cohomology of algebraic varieties. *Publ. Math. I. H. E. S.*29 (1966). · [Zbl 0145.17602](#)
- [18] Hartshorne, R.: Residues and duality. *Lecture Notes in Mathematics*20. Berlin-Heidelberg-New York: Springer 1966. · [Zbl 0212.26101](#)
- [19] Hasse, H.: Existenz separabler zyklischer unverzweigter Erweiterungskörper vom Primzahlgradep über elliptischen Funktionenkörpern der Charakteristikp. *J. Reine angew. Math.*172, 77-85 (1934). · [Zbl 60.0910.02](#)
- [20] Hasse, H., Witt, E.: Zyklische unverzweigte Erweiterungskörper vom Primzahlgradep über einem algebraischen Funktionenkörper der Charakteristikp. *Monatsh. für Math. u. Phys.*43, 477-492 (1936). · [Zbl 0013.34102](#) · [doi:10.1007/BF01707628](#)
- [21] Hironaka, H.: Resolution of singularities of an algebraic variety over a field of characteristic zero I, II. *Annals of Math.*79, 109-326 (1964). · [Zbl 0122.38603](#) · [doi:10.2307/1970486](#)
- [22] Hironaka, H.: Bimeromorphic smoothing of a complex-analytic space. Preprint available from Mathematics Institute, Univer-

- sity of Warwick (1971). · [Zbl 0407.32006](#)
- [23] Hochschild, G.: Simple algebras with purely inseparable splitting fields of exponent one. *Trans. Amer. Math. Soc.*79, 477-489 (1955). · [Zbl 0065.01902](#)
- [24] Honda, T.: Differential equations and formal groups. (Preprint). Presented at the 1971 U.S.-Japan Number Theory conference. · [Zbl 0337.14031](#)
- [25] Igusa, J.: Class number of a definite quaternion with prime discriminant. *Proc. Nat'l. Acad. Sci.*44, 312-314 (1958). · [Zbl 0081.03601](#) · [doi:10.1073/pnas.44.4.312](#)
- [26] Ihara, Y.: Schwarzian equations I. Preprint, 1971. · [Zbl 0353.14010](#)
- [27] Katz, N.: On the differential equations satisfied by period matrices. *Publ. Math. I. H. E. S.*35 (1968). · [Zbl 0159.22502](#)
- [28] Katz, N.: Nilpotent connections and the monodromy theorem: application of a result of Turrittin. *Publ. Math. I. H. E. S.*39, 355-232 (1970). · [Zbl 0221.14007](#)
- [29] Katz, N.: Une formule de congruence pour la fonction ζ . Exposé XXII, SGA 7, 1969. multigraph available from I. H. E. S. 91-Bures-sur-Y vette, France.
- [30] Kodaira, K., Spencer, D. C.: On deformations of complex structures, I, II, *Annals of Math.*67, 328-466 (1958). · [Zbl 0128.16901](#) · [doi:10.2307/1970009](#)
- [31] Manin, Ju.: Algebraic curves over fields with differentiation. *AMS Translations (2)*,37, 59-78 (1964). · [Zbl 0151.27601](#)
- [32] Manin, Ju.: The Hasse-Witt matrix of an algebraic curve. *AMS Translations (2)*45, 245-264 (1965). · [Zbl 0148.28002](#)
- [33] Manin, Ju.: Rational points of algebraic curves over function fields. *AMS Translations (2)*,50, 189-234 (1966). · [Zbl 0178.55102](#)
- [34] Mazur, B.: Frobenius and the Hodge filtration, Preprint available from Mathematics Institute, University of Warwick (1971). · [Zbl 0258.14006](#)
- [35] Mazur, B.: Frobenius and the Hodge filtration. (To appear.) · [Zbl 0258.14006](#)
- [36] Messing, W.: On the nilpotence of the hypergeometric equation. (To appear.) · [Zbl 0275.14002](#)
- [37] Messing, W.: The crystals associated to Barsoth-Tate groups; with applications to abelian schemes. Thesis, Princeton, 1971. (To appear.)
- [38] Messing, W., Mazur, B.: Cristalline cohomology and the universal extension of an abelian scheme. (To appear.) · [Zbl 0301.14016](#)
- [39] Mumford, D.: Abelian varieties. Bombay: Oxford University Press 1971. · [Zbl 0222.14023](#)
- [40] Oda, T., Katz, N.: On the differentiation of de Rham cohomology classes with respect to parameters. *J. Math. Kyoto Univer.*8, 199-213 (1968). · [Zbl 0165.54802](#)
- [41] Raynaud, M.: Géométrie algébrique et géométrie analytique. Exposé XII, SGA 1. *Lecture Notes in Mathematics*224. Berlin-Heidelberg-New York: Springer 1971.
- [42] Serre, J.P.: Représentations linéaires des groupes finis. Paris: Hermann 1967.
- [43] Serre, J.P.: Sur la topologie des variétés algébriques en caractéristique p . *Symposio International de Topologia Algebraica*. Mexico, 1958.
- [44] Serre, J.P.: Géométrie algébrique et géométrie analytique. *Ann Inst. Fourier*. Grenoble6, 1-42 (1956).
- [45] Tate, J.: W-C groups over p -adic fields. Exposé 156. Séminaire BOurbaki 1957/1958. New-York: W. A. Benjamin 1966.
- [46] Tessier, B., Lejeune, M.: Quelques calculs utiles pour la résolution des singularités. Multigraph available from Centre de Mathématiques, Ecole Polytechnique, 17, rue Descartes, Paris 50, (1971).
- [47] Verdier, J. L.: Base change for twisted inverse image of coherent sheaves. *Algebraic geometry*, Bombay: Oxford University Press 1968.
- [48] Weil, A.: Variétés Kähleriennes. *Act. Sci. et Ind.* 1267, Paris: Hermann 1968.
- [49] Weil, A.: Jacobi sums as Größencharaktere?. *Trans. Amer. Math. Soc.*73, 487-495 (1952). · [Zbl 0048.27001](#)
- [50] Whittaker, E. T., Watson, G.N.: A course of modern analysis. Cambridge: Cambridge University Press 1962. · [Zbl 0105.26901](#)

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