Universiteit
Leiden
The Netherlands

Counting points on K3 surfaces and other arithmetic-geometric objects

Visse, H.D.

Citation

Visse, H. D. (2018, December 18). *Counting points on K3 surfaces and other arithmetic-geometric objects*. Retrieved from https://hdl.handle.net/1887/67532

Version:	Not Applicable (or Unknown)
License:	Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden
Downloaded from:	https://hdl.handle.net/1887/67532

Note: To cite this publication please use the final published version (if applicable).

Cover Page

Universiteit Leiden

The handle http://hdl.handle.net/1887/67532 holds various files of this Leiden University dissertation.

Author: Visse, H.D.
Title: Counting points on K3 surfaces and other arithmetic-geometric objects
Issue Date: 2018-12-18

Bibliography

[And96] Yves André, *On the Shafarevich and Tate conjectures for hyper-Kähler varieties*, Math. Ann. **305** (1996), no. 2, 205–248. ↑15

[Apo76] Tom M. Apostol, *Introduction to analytic number theory*, Springer-Verlag, New York-Heidelberg, 1976. Undergraduate Texts in Mathematics. ↑16

[Aut13] Pascal Autissier, *Un lemme matriciel effectif*, Math. Z. **273** (2013), no. 1-2, 355–361. ↑123

[AVA18] Dan Abramovich and Anthony Várilly-Alvarado, *Level structures on Abelian varieties, Kodaira dimensions, and Lang's conjecture*, Adv. Math. **329** (2018), 523–540. ↑118

[BBFL07] M. J. Bright, N. Bruin, E. V. Flynn, and A. Logan, *The Brauer-Manin obstruction and Sha[2]*, LMS J. Comput. Math. **10** (2007), 354–377. ↑116

[BHB17] Tim Browning and Roger Heath-Brown, *Forms in many variables and differing degrees*, J. Eur. Math. Soc. (JEMS) **19** (2017), no. 2, 357–394. ↑53, 55

[Bir62] B. J. Birch, *Forms in many variables*, Proc. Roy. Soc. Ser. A **265** (1962), 245–263. ↑27, 28, 29, 30, 52, 53, 54, 76, 90, 91, 93, 110, 111

[BL17] T. D. Browning and D. Loughran, *Sieving rational points on varieties* (2017). preprint available at `https://arxiv.org/abs/1705.01999`. ↑51, 54, 55

[BLR90] Siegfried Bosch, Werner Lütkebohmert, and Michel Raynaud, *Néron models*, Ergebnisse der Mathematik und ihrer Grenzgebiete (3) [Results in Mathematics and Related Areas (3)], vol. 21, Springer-Verlag, Berlin, 1990. ↑148

[BM90] V. V. Batyrev and Yu. I. Manin, *Sur le nombre des points rationnels de hauteur borné des variétés algébriques*, Math. Ann. **286** (1990), no. 1-3, 27–43. ↑9

[Bos96] Jean-Benoît Bost, *Périodes et isogenies des variétés abéliennes sur les corps de nombres (d'après D. Masser et G. Wüstholz)*, Astérisque **237** (1996), Exp. No. 795, 4, 115–161. Séminaire Bourbaki, Vol. 1994/95. ↑120

[Bou06] N. Bourbaki, *Algèbre commutative Chapitres 1 à 4*, Second, Éléments de mathématique, Springer-Verlag, Berlin Heidelberg, 2006. ↑26

[Bri06] Martin Bright, *Brauer groups of diagonal quartic surfaces*, J. Symbolic Comput. **41** (2006), no. 5, 544–558. ↑34, 116

[Bro09] Timothy D. Browning, *Quantitative arithmetic of projective varieties*, Progress in Mathematics, vol. 277, Birkhäuser Verlag, Basel, 2009. ↑17, 19, 25, 50

[BSD75] B. J. Birch and H. P. F. Swinnerton-Dyer, *The Hasse problem for rational surfaces*, J. Reine Angew. Math. **274/275** (1975), 164–174. Collection of articles dedicated to Helmut Hasse on his seventy-fifth birthday, III. ↑116

[BT95] Victor V. Batyrev and Yuri Tschinkel, *Rational points of bounded height on compactifications of anisotropic tori*, Internat. Math. Res. Notices **12** (1995), 591–635. ↑10

[BT96] ———, *Rational points on some Fano cubic bundles*, C. R. Acad. Sci. Paris Sér. I Math. **323** (1996), no. 1, 41–46. ↑10

[CF16] V. Cantoral-Farfán, *A survey around the Hodge, Tate and Mumford-Tate conjectures for abelian varieties* (2016). preprint available at `https://arxiv.org/abs/1602.08354`. ↑131

[CFTTV16] Victoria Cantoral-Farfán, Yunqing Tang, Sho Tanimoto, and Erik Visse, *Effective bounds for Brauer groups of Kummer surfaces over number fields* (2016). preprint available at `https://arxiv.org/abs/1606.06074`. ↑119

[CFTTV18] ———, *Effective bounds for Brauer groups of Kummer surfaces over number fields*, Journal of the London Mathematical Society **97** (2018), no. 3, 353–376. ↑115

[Cha13] François Charles, *The Tate conjecture for K3 surfaces over finite fields*, Invent. Math. **194** (2013), no. 1, 119–145. ↑15

[Cha14] ———, *On the Picard number of K3 surfaces over number fields*, Algebra Number Theory **8** (2014), no. 1, 1–17. ↑118, 131, 132, 133

[Con16] Brian Conrey, *Statistics of L-functions*, 2016. Analytic Number Theory, Oberwolfach. ↑50

[CTCS80] Jean-Louis Colliot-Thélène, Daniel Coray, and Jean-Jacques Sansuc, *Descente et principe de Hasse pour certaines variétés rationnelles*, J. Reine Angew. Math. **320** (1980), 150–191. ↑116

[CTKS87] Jean-Louis Colliot-Thélène, Dimitri Kanevsky, and Jean-Jacques Sansuc, *Arithmétique des surfaces cubiques diagonales*, Diophantine approximation and transcendence theory (Bonn, 1985), 1987, pp. 1–108. ↑116

[CTS13] Jean-Louis Colliot-Thélène and Alexei N. Skorobogatov, *Good reduction of the Brauer-Manin obstruction*, Trans. Amer. Math. Soc. **365** (2013), no. 2, 579–590. ↑116

[CTSSD87] Jean-Louis Colliot-Thélène, Jean-Jacques Sansuc, and Peter Swinnerton-Dyer, *Intersections of two quadrics and Châtelet surfaces. I*, J. Reine Angew. Math. **373** (1987), 37–107. ↑116

[Dav05] H. Davenport, *Analytic methods for Diophantine equations and Diophantine inequalities*, Second, Cambridge Mathematical Library, Cambridge University Press, Cambridge, 2005. With a foreword by R. C. Vaughan, D. R. Heath-Brown and D. E. Freeman, Edited and prepared for publication by T. D. Browning. ↑17, 21

[Die02] Luis V. Dieulefait, *Explicit determination of the images of the Galois representations attached to abelian surfaces with* $\mathrm{End}(A) = \mathbb{Z}$, Experiment. Math. **11** (2002), no. 4, 503–512 (2003). ↑118, 119, 148, 149

[DS18] Kevin Destagnol and Efthymios Sofos, *Prime and square-free values of polynomials in moderately many variables* (2018). preprint available at `https://arxiv.org/abs/1801.03082`. ↑76

[EJ10] Andreas-Stephan Elsenhans and Jörg Jahnel, *On the Brauer-Manin obstruction for cubic surfaces*, J. Comb. Number Theory **2** (2010), no. 2, 107–128. ↑116

[EJ12a] ———, *Kummer surfaces and the computation of the Picard group*, LMS J. Comput. Math. **15** (2012), 84–100. ↑119, 133, 147

[EJ12b] ———, *On the order three Brauer classes for cubic surfaces*, Cent. Eur. J. Math. **10** (2012), no. 3, 903–926. ↑116

[Fal86] Gerd Faltings, *Finiteness theorems for abelian varieties over number fields*, Arithmetic geometry (Storrs, Conn., 1984), 1986, pp. 9–27. Translated from the German original [Invent. Math. **7**3 (1983), no. 3, 349–366; ibid. **7**5 (1984), no. 2, 381; MR 85g:11026ab] by Edward Shipz. ↑120

[FI10] John Friedlander and Henryk Iwaniec, *Opera de cribro*, American Mathematical Society Colloquium Publications, vol. 57, American Mathematical Society, Providence, RI, 2010. ↑66

[FLS18] C. Frei, D. Loughran, and E. Sofos, *Rational points of bounded height on general conic bundle surfaces*, Proc. Lond. Math. Soc. (2018). to appear. ↑53

[FMT89] Jens Franke, Yuri I. Manin, and Yuri Tschinkel, *Rational points of bounded height on Fano varieties*, Invent. Math. **95** (1989), no. 2, 421–435. ↑9

[FS97] E. V. Flynn and N. P. Smart, *Canonical heights on the Jacobians of curves of genus* 2 *and the infinite descent*, Acta Arith. **79** (1997), no. 4, 333–352. ↑117

[GK17] Andrew Granville and Dimitris Koukoulopoulos, *Beyond the LSD method for the partial sums of multiplicative functions* (2017). preprint available at `https://arxiv.org/abs/1710.01389`. ↑34, 35

[GR14] Éric Gaudron and Gaël Rémond, *Polarisations et isogénies*, Duke Math. J. **163** (2014), no. 11, 2057–2108. ↑120, 122, 123, 124, 125

[HB98] D. R. Heath-Brown, *The circle method and diagonal cubic forms*, R. Soc. Lond. Philos. Trans. Ser. A Math. Phys. Eng. Sci. **356** (1998), no. 1738, 673–699. ↑50

[HKT13] Brendan Hassett, Andrew Kresch, and Yuri Tschinkel, *Effective computation of Picard groups and Brauer-Manin obstructions of degree two K3 surfaces over number fields*, Rend. Circ. Mat. Palermo (2) **62** (2013), no. 1, 137–151. ↑116, 117, 118, 139

[Hoo07] Christopher Hooley, *On ternary quadratic forms that represent zero. II*, J. Reine Angew. Math. **602** (2007), 179–225. ↑51

[Hoo93] C. Hooley, *On ternary quadratic forms that represent zero*, Glasgow Math. J. **35** (1993), no. 1, 13–23. ↑51, 93

[HS16] Yonatan Harpaz and Alexei N. Skorobogatov, *Hasse principle for Kummer varieties*, Algebra Number Theory **10** (2016), no. 4, 813–841. ↑116

[Huy16] Daniel Huybrechts, *Lectures on K3 surfaces*, Cambridge Studies in Advanced Mathematics, vol. 158, Cambridge University Press, Cambridge, 2016. ↑8

[HVA13] Brendan Hassett and Anthony Várilly-Alvarado, *Failure of the Hasse principle on general K3 surfaces*, J. Inst. Math. Jussieu **12** (2013), no. 4, 853–877. ↑116

[HVAV11] Brendan Hassett, Anthony Várilly-Alvarado, and Patrick Varilly, *Transcendental obstructions to weak approximation on general K3 surfaces*, Adv. Math. **228** (2011), no. 3, 1377–1404. ↑116

[IK04] Henryk Iwaniec and Emmanuel Kowalski, *Analytic number theory*, American Mathematical Society Colloquium Publications, vol. 53, American Mathematical Society, Providence, RI, 2004. ↑6, 15, 16, 17, 38, 40

[IS15] Evis Ieronymou and Alexei N. Skorobogatov, *Odd order Brauer-Manin obstruction on diagonal quartic surfaces*, Adv. Math. **270** (2015), 181–205. ↑116

[ISZ11] Evis Ieronymou, Alexei N. Skorobogatov, and Yuri G. Zarhin, *On the Brauer group of diagonal quartic surfaces*, J. Lond. Math. Soc. (2) **83** (2011), no. 3, 659–672. With an appendix by Peter Swinnerton-Dyer. ↑116

[Kau99] Ivan Kausz, *A discriminant and an upper bound for ω^2 for hyperelliptic arithmetic surfaces*, Compositio Math. **115** (1999), no. 1, 37–69. ↑121

[KMP16] Wansu Kim and Keerthi Madapusi Pera, *2-adic integral canonical models*, Forum Math. Sigma **4** (2016), e28, 34. ↑15

[KT04] Andrew Kresch and Yuri Tschinkel, *On the arithmetic of del Pezzo surfaces of degree 2*, Proc. London Math. Soc. (3) **89** (2004), no. 3, 545–569. ↑116

[KT08] ———, *Effectivity of Brauer-Manin obstructions*, Adv. Math. **218** (2008), no. 1, 1–27. ↑116

[KT11] ———, *Effectivity of Brauer-Manin obstructions on surfaces*, Adv. Math. **226** (2011), no. 5, 4131–4144. ↑116

[KW09a] Chandrashekhar Khare and Jean-Pierre Wintenberger, *Serre's modularity conjecture. I*, Invent. Math. **178** (2009), no. 3, 485–504. ↑148

[KW09b] ———, *Serre's modularity conjecture. II*, Invent. Math. **178** (2009), no. 3, 505–586. ↑148

[Liv95] Ron Livné, *Motivic orthogonal two-dimensional representations of* $\mathrm{Gal}(\overline{\mathbf{Q}}/\mathbf{Q})$, Israel J. Math. **92** (1995), no. 1-3, 149–156. ↑14

[LLR05] Qing Liu, Dino Lorenzini, and Michel Raynaud, *On the Brauer group of a surface*, Invent. Math. **159** (2005), no. 3, 673–676. ↑132

[Log08] Adam Logan, *The Brauer-Manin obstruction on del Pezzo surfaces of degree 2 branched along a plane section of a Kummer surface*, Math. Proc. Cambridge Philos. Soc. **144** (2008), no. 3, 603–622. ↑116

[Lou13] D. Loughran, *The number of varieties in a family which contain a rational point*, J. Eur. Math. Soc. (2013). to appear, preprint available at `https://arxiv.org/abs/1310.6219`. ↑11, 51, 52, 108, 109

[LP80] Eduard Looijenga and Chris Peters, *Torelli theorems for Kähler K3 surfaces*, Compositio Math. **42** (1980/81), no. 2, 145–186. ↑135, 136, 144

[LS16] D. Loughran and A. Smeets, *Fibrations with few rational points*, Geom. Funct. Anal. **26** (2016), no. 5, 1449–1482. ↑51, 52, 55

[LST18] Brian Lehmann, Akash Kumar Sengupta, and Sho Tanimoto, *Geometric consistency of Manin's Conjecture* (2018). preprint available at `https://arxiv.org/abs/1805.10580`. ↑10

[LT18] Brian Lehmann and Sho Tanimoto, *On exceptinal sets in Manin's Conjecture* (2018). preprint available at `https://arxiv.org/abs/1807.07995`. ↑10

[LTBT17] D. Loughran, R. Takloo-Bighash, and S. Tanimoto, *Zero-loci of Brauer group elements on semi-simple algebraic groups* (2017). preprint available at `https://arxiv.org/abs/1705.09244`. ↑51, 52

[Lui] R.M. van Luijk. data available at `http://pub.math.leidenuniv.nl/~luijkrmvan/maninK3/`. ↑9, 34

[LvL09] Adam Logan and Ronald van Luijk, *Nontrivial elements of Sha explained through K3 surfaces*, Math. Comp. **78** (2009), no. 265, 441–483. ↑116

[Man71] Y. I. Manin, *Le groupe de Brauer-Grothendieck en géométrie diophantienne* (1971), 401–411. ↑116

[Man86] Yu. I. Manin, *Cubic forms*, Second, North-Holland Mathematical Library, vol. 4, North-Holland Publishing Co., Amsterdam, 1986. Algebra, geometry, arithmetic, Translated from the Russian by M. Hazewinkel. ↑116

[Mau14] Davesh Maulik, *Supersingular K3 surfaces for large primes*, Duke Math. J. **163** (2014), no. 13, 2357–2425. With an appendix by Andrew Snowden. ↑15

[McK11] David McKinnon, *Vojta's conjecture implies the Batyrev-Manin conjecture for K3 surfaces*, Bull. Lond. Math. Soc. **43** (2011), no. 6, 1111–1118. ↑9

[Mil75] J. S. Milne, *On a conjecture of Artin and Tate*, Ann. of Math. (2) **102** (1975), no. 3, 517–533. ↑132

[MP15] Keerthi Madapusi Pera, *The Tate conjecture for K3 surfaces in odd characteristic*, Invent. Math. **201** (2015), no. 2, 625–668. ↑15

[MSTVA17] Kelly McKinnie, Justin Sawon, Sho Tanimoto, and Anthony Várilly-Alvarado, *Brauer groups on K3 surfaces and arithmetic applications*, Brauer groups and obstruction problems, 2017, pp. 177–218. ↑116

[Mum70] David Mumford, *Abelian varieties*, Tata Institute of Fundamental Research Studies in Mathematics, No. 5, Published for the Tata Institute of Fundamental Research, Bombay; Oxford University Press, London, 1970. ↑122, 131

[MV07] Hugh L. Montgomery and Robert C. Vaughan, *Multiplicative number theory. I. Classical theory*, Cambridge Studies in Advanced Mathematics, vol. 97, Cambridge University Press, Cambridge, 2007. ↑6, 16, 31

[MW95] D. W. Masser and G. Wüstholz, *Refinements of the Tate conjecture for abelian varieties*, Abelian varieties (Egloffstein, 1993), 1995, pp. 211–223. ↑120, 128

[New16] Rachel Newton, *Transcendental Brauer groups of products of CM elliptic curves*, J. Lond. Math. Soc. (2) **93** (2016), no. 2, 397–419. ↑138

[Nik79] V. V. Nikulin, *Integer symmetric bilinear forms and some of their geometric applications*, Izv. Akad. Nauk SSSR Ser. Mat. **43** (1979), no. 1, 111–177, 238. ↑134, 136, 137

[NO85] Niels Nygaard and Arthur Ogus, *Tate's conjecture for $K3$ surfaces of finite height*, Ann. of Math. (2) **122** (1985), no. 3, 461–507. ↑15

[Odo73] R. W. K. Odoni, *The Farey density of norm subgroups of global fields. I*, Mathematika **20** (1973), 155–169. ↑55

[Ogu82] A. Ogus, *Hodge cycles and crystalline cohomology*, Hodge cycles, motives, and Shimura varieties, 1982. ↑131

[Paz12] Fabien Pazuki, *Theta height and Faltings height*, Bull. Soc. Math. France **140** (2012), no. 1, 19–49. ↑120

[Paz14] F. Pazuki, *Décompositions en hauteurs locales* (2014). preprint available at `https://arxiv.org/abs/1205.4525`. ↑120, 121

[Pey17] Emmanuel Peyre, *Liberté et accumulation*, Doc. Math. **22** (2017), 1615–1659. ↑10

[Pey18] ———, *Beyond heights: slopes and distribution of rational points* (2018). preprint available at `https://arxiv.org/abs/1806.11437`. ↑10

[Pey95] ———, *Hauteurs et mesures de Tamagawa sur les variétés de Fano*, Duke Math. J. **79** (1995), no. 1, 101–218. ↑9, 10

[PSD91] R. G. E. Pinch and H. P. F. Swinnerton-Dyer, *Arithmetic of diagonal quartic surfaces. I*, L-functions and arithmetic (Durham, 1989), 1991, pp. 317–338. ↑14

[PT01] Emmanuel Peyre and Yuri Tschinkel, *Tamagawa numbers of diagonal cubic surfaces, numerical evidence*, Math. Comp. **70** (2001), no. 233, 367–387. ↑109

[PTvL15] Bjorn Poonen, Damiano Testa, and Ronald van Luijk, *Computing Néron-Severi groups and cycle class groups*, Compos. Math. **151** (2015), no. 4, 713–734. ↑116, 118, 130

[PV04] Bjorn Poonen and José Felipe Voloch, *Random Diophantine equations*, Arithmetic of higher-dimensional algebraic varieties (Palo Alto, CA, 2002), 2004, pp. 175–184. With appendices by Jean-Louis Colliot-Thélène and Nicholas M. Katz. ↑51

[Rie65] G. J. Rieger, *über die Anzahl der als Summe von zwei Quadraten darstellbaren und in einer primen Restklasse gelegenen Zahlen unterhalb einer positiven Schranke. II*, J. Reine Angew. Math. **217** (1965), 200–216. ↑63

[Rud14] Céline Le Rudulier, *Point algébriques de hauteur bornée*, 2014. PhD thesis, Université de Rennes 1. ↑10

[Sal98] Per Salberger, *Tamagawa measures on universal torsors and points of bounded height on Fano varieties*, Astérisque **251** (1998), 91–258. Nombre et répartition de points de hauteur bornée (Paris, 1996). ↑11

[SD00] Peter Swinnerton-Dyer, *Arithmetic of diagonal quartic surfaces. II*, Proc. London Math. Soc. (3) **80** (2000), no. 3, 513–544. ↑34

[SD93] ———, *The Brauer group of cubic surfaces*, Math. Proc. Cambridge Philos. Soc. **113** (1993), no. 3, 449–460. ↑116

[SD99] ———, *Brauer-Manin obstructions on some Del Pezzo surfaces*, Math. Proc. Cambridge Philos. Soc. **125** (1999), no. 2, 193–198. ↑116

[Ser73] J.-P. Serre, *A course in arithmetic*, Springer-Verlag, New York-Heidelberg, 1973. Translated from the French, Graduate Texts in Mathematics, No. 7. ↑62, 108

[Ser90] Jean-Pierre Serre, *Spécialisation des éléments de* $\mathrm{Br}_2(\mathbf{Q}(T_1, \cdots, T_n))$, C. R. Acad. Sci. Paris Sér. I Math. **311** (1990), no. 7, 397–402. ↑51

[Ser97] ———, *Lectures on the Mordell-Weil theorem*, Third, Aspects of Mathematics, Friedr. Vieweg & Sohn, Braunschweig, 1997. Translated from the French and edited by Martin Brown from notes by Michel Waldschmidt, With a foreword by Brown and Serre. ↑10

[Sha08] William Shakespeare, *Complete works*, The RSC Shakespeare, Red Globe Press, Basingstoke, 2008. Edited by Jonathan Bate and Eric Rasmussen. ↑

[Sil92] A. Silverberg, *Fields of definition for homomorphisms of abelian varieties*, J. Pure Appl. Algebra **77** (1992), no. 3, 253–262. ↑123

[Sko17] A. N. Skorobogatov, *Kummer varieties and their Brauer groups* (2017). preprint available at `https://arxiv.org/abs/1612.05993`. ↑118, 119, 148, 149

[Sof16] E. Sofos, *Serre's problem on the density of isotropic fibres in conic bundles*, Proc. Lond. Math. Soc. (3) **113** (2016), no. 2, 261–288. ↑51

[SVM18] Efthymios Sofos and Erik Visse-Martindale, *The density of fibres with a rational point for a fibration over hypersurfaces of low degree* (2018). preprint available at `https://arxiv.org/abs/1804.05768`. ↑51

[SZ08] Alexei N. Skorobogatov and Yuri G. Zarhin, *A finiteness theorem for the Brauer group of abelian varieties and K3 surfaces*, J. Algebraic Geom. **17** (2008), no. 3, 481–502. ↑11, 116, 118, 139, 141

[SZ12] ———, *The Brauer group of Kummer surfaces and torsion of elliptic curves*, J. Reine Angew. Math. **666** (2012), 115–140. ↑117, 118, 138

[SZ14] ———, *The Brauer group and the Brauer-Manin set of products of varieties*, J. Eur. Math. Soc. (JEMS) **16** (2014), no. 4, 749–768. MR3191975 ↑116

[Tan88] S. G. Tankeev, *Surfaces of type K3 over number fields, and l-adic representations*, Izv. Akad. Nauk SSSR Ser. Mat. **52** (1988), no. 6, 1252–1271, 1328. ↑15

[Tat65] John T. Tate, *Algebraic cycles and poles of zeta functions*, Arithmetical Algebraic Geometry (Proc. Conf. Purdue Univ., 1963), 1965, pp. 93–110. ↑15

[Tat66] John Tate, *Endomorphisms of abelian varieties over finite fields*, Invent. Math. **2** (1966), 134–144. ↑132

[Ten95] Gérald Tenenbaum, *Introduction to analytic and probabilistic number theory*, Cambridge Studies in Advanced Mathematics, vol. 46, Cambridge University Press, Cambridge, 1995. Translated from the second French edition (1995) by C. B. Thomas. ↑56, 62

[TVA16] S. Tanimoto and A. Várilly-Alvarado, *Kodaira dimension of moduli of special cubic fourfolds*, J. Reine Angew. Math. (2016). to appear. ↑118

[VA08] Anthony Várilly-Alvarado, *Weak approximation on del Pezzo surfaces of degree 1*, Adv. Math. **219** (2008), no. 6, 2123–2145. ↑116

[VA17] ———, *Arithmetic of K3 surfaces*, Geometry over nonclosed fields, 2017, pp. 197–248. ↑118

[VAV17] Anthony Várilly-Alvarado and Bianca Viray, *Abelian n-division fields of elliptic curves and Brauer groups of product Kummer & abelian surfaces*, Forum Math. Sigma **5** (2017), e26, 42. ↑119

[VW95] R. C. Vaughan and T. D. Wooley, *On a certain nonary cubic form and related equations*, Duke Math. J. **80** (1995), no. 3, 669–735. ↑50

[Wir61] Eduard Wirsing, *Das asymptotische Verhalten von Summen über multiplikative Funktionen*, Math. Ann. **143** (1961), 75–102. ↑34

[Wit16] Olivier Wittenberg, *Rational points and zero-cycles on rationally connected varieties over number fields* (2016). preprint available at `https://arxiv.org/abs/1604.08543`. ↑116