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References

- [BBM82] P. Berthelot, L. Breen, and W. Messing. *Théorie de Dieudonné cristalline. II*, volume 930 of *Lecture Notes in Mathematics*. Springer-Verlag, Berlin, 1982. URL: <http://dx.doi.org/10.1007/BFb0093025>, doi:10.1007/BFb0093025.
- [Bre98] C. Breuil. Schemas en groupes et corps des normes. 1998. Non published article. URL: <https://www.math.u-psud.fr/~breuil/PUBLICATIONS/groupeSNormes.pdf>.
- [BC09] O. Brinon and B. Conrad. CMI summer school notes on p -adic Hodge theory (preliminary version). 2009.
- [BL94] A. Beauville and Y. Laszlo. Conformal blocks and generalized Theta functions. *Communications in Mathematical Physics*, 164(2):385–419, 1994. URL: <http://dx.doi.org/10.1007/BF02101707>, doi:10.1007/BF02101707.
- [BM07] P. Berthelot and W. Messing. *Théorie de Dieudonné cristalline III: théorèmes d'équivalence et de pleine fidélité*, pages 173–247. Birkhäuser Boston, Boston, MA, 2007. URL: http://dx.doi.org/10.1007/978-0-8176-4574-8_7, doi:10.1007/978-0-8176-4574-8_7.
- [Bou06] N. Bourbaki. *Éléments de mathématique. Algèbre commutative. Chapitres 8 et 9*. Springer, Berlin, 2006. Reprint of the 1983 original.
- [BT08] O. Brinon and F. Trihan. Représentations cristallines et F -cristaux: le cas d'un corps résiduel imparfait. *Rend. Semin. Mat. Univ. Padova*, 119:141–171, 2008. URL: <http://dx.doi.org/10.4171/RSMUP/119-4>, doi:10.4171/RSMUP/119-4.
- [CL09] X. Caruso and T. Liu. Quasi-semi-stable representations. *Bull. Soc. Math. France*, 137(2):185–223, 2009.
- [CLA17] B. Cais and E. Lau. Dieudonné crystals and Wach modules for p -divisible groups. *Proceedings of the London Mathematical Society*, 2017. URL: <http://dx.doi.org/10.1112/plms.12021>, doi:10.1112/plms.12021.
- [Con11] B. Conrad. Reductive group schemes (SGA3 summer school), 2011.
- [DG] M. Demazure and A. Grothendieck. *Séminaire de Géométrie Algébrique du Bois Marie - 1962-64 - Schémas en groupes - (SGA 3)*. Société Mathématique de France.

- [dJ95] A. J. de Jong. Crystalline Dieudonné module theory via formal and rigid geometry. *Inst. Hautes Études Sci. Publ. Math.*, (82):5–96 (1996), 1995. URL: http://www.numdam.org/item?id=PMIHES_1995__82__5_0.
- [Fal03] G. Faltings. Algebraic loop groups and moduli spaces of bundles. *J. Eur. Math. Soc.* 5, 2003.
- [GK15] W. Goldring and J.-S. Koskivirta. Strata Hasse invariants, Hecke algebras and Galois representations. *ArXiv e-prints*, July 2015. [arXiv:1507.05032](https://arxiv.org/abs/1507.05032).
- [GW10] U. Görtz and T. Wedhorn. *Algebraic geometry I*. Advanced Lectures in Mathematics. Vieweg + Teubner, Wiesbaden, 2010. Schemes with examples and exercises. URL: <http://dx.doi.org/10.1007/978-3-8348-9722-0>, doi:10.1007/978-3-8348-9722-0.
- [Ill71] L. Illusie. *Complexe cotangent et déformations. I*. Lecture Notes in Mathematics, Vol. 239. Springer-Verlag, Berlin-New York, 1971.
- [Kim13] W. Kim. Rapoport-Zink uniformisation of Hodge-type Shimura varieties. 2013. Reprint.
- [Kim15] W. Kim. The relative Breuil-Kisin classification of p -divisible groups and finite flat group schemes. *Int. Math. Res. Not. IMRN*, (17):8152–8232, 2015. URL: <http://dx.doi.org/10.1093/imrn/rnu193>, doi:10.1093/imrn/rnu193.
- [Kim15b] W. Kim. Erratum to “the relative Breuil-Kisin classification of p -divisible groups and finite flat group schemes”. *International Mathematics Research Notices*, 2015(17):8353, 2015. doi:10.1093/imrn/rnv028.
- [Kis06] M. Kisin. Crystalline representations and F -crystals. In *Algebraic geometry and number theory*, volume 253 of *Progr. Math.*, pages 459–496. Birkhäuser Boston, Boston, MA, 2006. URL: http://dx.doi.org/10.1007/978-0-8176-4532-8_7, doi:10.1007/978-0-8176-4532-8_7.
- [Kis10] M. Kisin. Integral models for Shimura varieties of abelian type. *J. Amer. Math. Soc.*, 23(4):967–1012, 2010. URL: <http://dx.doi.org/10.1090/S0894-0347-10-00667-3>, doi:10.1090/S0894-0347-10-00667-3.
- [Kis13] M. Kisin. Mod p points on Shimura varieties of abelian type. *to appear in J.A.M.S.*, 2013. URL: <http://www.math.harvard.edu/~kisin/dvifiles/lr.pdf>.

- [Kot84] R. Kottwitz. Shimura varieties and twisted orbital integrals. *Mathematische Annalen*, 269:287–300, 1984. URL: <http://eudml.org/doc/163936>.
- [KW14] J.-S. Koskivirta and T. Wedhorn. Generalized Hasse invariants for Shimura varieties of Hodge type. *ArXiv e-prints*, June 2014. [arXiv: 1406.2178](https://arxiv.org/abs/1406.2178).
- [Lau10] E. Lau. Frames and finite group schemes over complete regular local rings. *Doc. Math.*, 15:545–569, 2010.
- [Lau14] E. Lau. Relations between Dieudonné displays and crystalline Dieudonné theory. *Algebra Number Theory*, 8(9):2201–2262, 2014. URL: <http://dx.doi.org/10.2140/ant.2014.8.2201>, doi: 10.2140/ant.2014.8.2201.
- [Lev13] B. Levin. G -valued flat deformations and local models, 2013. URL: <http://math.uchicago.edu/~bwlevin/LevinThesis.pdf>.
- [Mil04] J. Milne. Introduction to Shimura varieties. 2004. URL: <http://www.jmilne.org/math/xnotes/svi.pdf>.
- [Mil94] J. Milne. Shimura varieties and motives. In *Motives (Seattle, WA, 1991)*, volume 55 of *Proc. Sympos. Pure Math.*, pages 447–523. Amer. Math. Soc., Providence, RI, 1994.
- [Mil15] J. Milne. Algebraic groups (v2.00), 2015. Available at www.jmilne.org/math/.
- [Moo01] B. Moonen. Group schemes with additional structures and Weyl group cosets. In *Moduli of abelian varieties (Texel Island, 1999)*, volume 195 of *Progr. Math.*, pages 255–298. Birkhäuser, Basel, 2001.
- [MW04] B. Moonen and T. Wedhorn. Discrete invariants of varieties in positive characteristic. *Int. Math. Res. Not.*, (72):3855–3903, 2004. URL: <http://dx.doi.org/10.1155/S1073792804141263>, doi:10.1155/S1073792804141263.
- [Oor01] F. Oort. A stratification of a moduli space of abelian varieties. In *Moduli of abelian varieties (Texel Island, 1999)*, volume 195 of *Progr. Math.*, pages 345–416. Birkhäuser, Basel, 2001. URL: http://dx.doi.org/10.1007/978-3-0348-8303-0_13, doi: 10.1007/978-3-0348-8303-0_13.
- [PR08] G. Pappas and M. Rapoport. Twisted loop groups and their affine flag varieties. *Adv. Math.*, 219(1):118–198, 2008. With an appendix by T. Haines and Rapoport. URL: <http://dx.doi.org/10.1016/j.aim.2008.04.006>, doi:10.1016/j.aim.2008.04.006.

- [PWZ11] R. Pink, T. Wedhorn, and P. Ziegler. Algebraic Zip Data. *Documenta Mathematica*, 16:253–300, 2011.
- [PWZ15] R. Pink, T. Wedhorn, and P. Ziegler. F -zips with additional structure. *Pacific Journal of Mathematics*, 274(1):183–236, 2015.
- [Sta] The Stacks Project Authors. stacks project. <http://stacks.math.columbia.edu>.
- [Vas99] A. Vasiu. Integral canonical models of Shimura varieties of preabelian type. *Asian J. Math.*, 3(2):401–518, 1999. URL: <http://dx.doi.org/10.4310/AJM.1999.v3.n2.a8>, doi:10.4310/AJM.1999.v3.n2.a8.
- [Vie14] E. Viehmann. Truncations of level 1 of elements in the loop group of a reductive group. *Ann. of Math. (2)*, 179(3):1009–1040, 2014. URL: <http://dx.doi.org/10.4007/annals.2014.179.3.3>, doi:10.4007/annals.2014.179.3.3.
- [VW13] E. Viehmann and T. Wedhorn. Ekedahl–Oort and Newton strata for Shimura varieties of PEL type. *Mathematische Annalen*, 356(4):1493–1550, 2013. URL: <http://dx.doi.org/10.1007/s00208-012-0892-z>, doi:10.1007/s00208-012-0892-z.
- [VZ10] A. Vasiu and T. Zink. Breuil’s classification of p -divisible groups over regular local rings of arbitrary dimension. In *Algebraic and arithmetic structures of moduli spaces (Sapporo 2007)*, volume 58 of *Adv. Stud. Pure Math.*, pages 461–479. Math. Soc. Japan, Tokyo, 2010.
- [Wed01] T. Wedhorn. *The Dimension of Oort Strata of Shimura Varieties of PEL-Type*, pages 441–471. Birkhäuser Basel, Basel, 2001. URL: http://dx.doi.org/10.1007/978-3-0348-8303-0_15, doi:10.1007/978-3-0348-8303-0_15.
- [Wor13] D. Wortmann. The μ -ordinary locus for Shimura varieties of Hodge type. *ArXiv e-prints*, October 2013. [arXiv:1310.6444](https://arxiv.org/abs/1310.6444).
- [Zha13] C. Zhang. Ekedahl–Oort strata for good reductions of Shimura varieties of Hodge type. *ArXiv e-prints*, December 2013. [arXiv:1312.4869](https://arxiv.org/abs/1312.4869).
- [Zin01] T. Zink. Windows for displays of p -divisible groups. In *Moduli of abelian varieties (Texel Island, 1999)*, volume 195 of *Progr. Math.*, pages 491–518. Birkhäuser, Basel, 2001.