

**Kottwitz, Robert E.**

**On the Hodge-Newton decomposition for split groups.** (English) Zbl 1074.14016  
*Int. Math. Res. Not.* 2003, No. 26, 1433-1447 (2003).

Summary: The main purpose of this paper is to prove a group-theoretic generalization of a theorem of *N. M. Katz* on isocrystals [*Astérisque* 63, 113–164 (1979; [Zbl 0426.14007](#))]. Along the way, we re-prove the group-theoretic generalization of Mazur's inequality for isocrystals due to *M. Rapoport* and *M. Richartz* [*Compos. Math.* 103, 153–181 (1996; [Zbl 0874.14008](#))], and generalize, from split groups to unramified groups, a result from the author and *M. Rapoport* [*Comment. Math. Helv.* 78, No.1, 153–184 (2003; [Zbl 1126.14023](#))] which determines when the affine Deligne-Lusztig subset  $X_{\mu(b)}^G$  of  $G(L)/G(\mathcal{O}_L)$  is nonempty.

**MSC:**

- [14F30](#) *p*-adic cohomology, crystalline cohomology
- [22E50](#) Representations of Lie and linear algebraic groups over local fields
- [20G25](#) Linear algebraic groups over local fields and their integers

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