

1058-05-233

Alex Miller* (mill1966@math.umn.edu), School of Mathematics, Room 127 VinH 0412, 206 Church St S E, Minneapolis, MN 55455, and **Victor Reiner**. *Differential Posets and Smith Normal Forms*.

We present a conjecture asserting a strong property for the up and down maps U and D in an r -differential poset: $DU + tI$ and $UD + tI$ have Smith normal forms over $\mathbb{Z}[t]$. In particular, this would determine the integral structure of the maps U , D , UD , DU , including their ranks in any characteristic. As evidence for such a conjecture, we will focus mainly on two families: Cartesian products of Young's lattice and the r -differential generalizations of the Young-Fibonacci lattice. In particular, the conjecture has been verified in the latter family, and many of its consequences have been verified for Cartesian products of Young's lattice. (Received February 15, 2010)