

1011-13-33

**Nicholas R Baeth\*** (baeth@cmsu1.cmsu.edu), Department of Mathematics & Computer Science, WCM 222, Central Missouri State University, Warrensburg, MO 64093-5045. *Failure of Krull-Schmidt for Two-dimensional Local Domains*. Preliminary report.

Let  $(R, m, k)$  be a local domain of dimension two with  $k$  an algebraically closed field of characteristic zero such that the  $m$ -adic completion  $\hat{R}$  is isomorphic to the fixed ring  $k[[x, y]]^G$  where  $G$  is a finite subgroup of  $SL(2, k)$ , a Klein group. Then  $\hat{R}$  and  $R$  have finite Cohen-Macaulay type — only finitely many non-isomorphic indecomposable finitely generated modules of depth two. The Krull-Schmidt property is known to hold for all finitely generated modules over a complete local ring. By comparing the class group of  $R$  with the class group of  $\hat{R}$  we are able to determine when the Krull-Schmidt property holds for the class of finitely generated  $R$ -modules of depth two. (Received July 18, 2005)