

1046-13-813

**Nicholas R. Baeth\*** (baeth@ucmo.edu), W. C. Morris 213, Department of Mathematics and Comp. Sci., University of Central Missouri, Warrensburg, MO 64093, and **Melissa R. Lucas**.  
*Ranks of Indecomposable Torsion-free Modules and a Krull-Schmidt Theorem.*

Let  $M$  be a finitely generated torsion-free module over a one-dimensional reduced Noetherian ring  $R$  with finitely generated normalization. The *rank* of  $M$  is the tuple of vector space dimensions of  $M_P$  over each field  $R_P$ , where  $P$  ranges over the minimal prime ideals of  $R$ . Given the existence of a bound on the ranks of all indecomposable finitely generated torsion-free  $R$ -modules, what ranks occur? Partial answers to this question have been given by several authors over the past forty years. We now provide a final answer by giving a concise list of the ranks of indecomposable modules. Then, using these ranks, we are able to give a measure of how close the category of torsion-free  $R$ -modules is to having the Krull-Schmidt property. (Received September 11, 2008)