1086-13-194   **Silvia Saccon*** (`ssaccon@math.arizona.edu`), Department of Mathematics, The University of Arizona, Tucson, AZ 85721-0089, and **Nicholas R. Baeth**, Dept. of Mathematics and Computer Science, University of Central Missouri. *What does elasticity tell us about direct-sum behavior of torsion-free modules?*

In the last half century, there has been a lot of interest in the study of direct-sum behavior of finitely generated modules over commutative Noetherian local rings, and, more recently, in the interplay between direct-sum decompositions of modules and factorizations in commutative monoids. While every module is a direct sum of indecomposable modules, these decompositions need not be unique, and this behavior can be captured by the monoid of isomorphism classes of modules (with operation induced by the direct sum). In particular, monoid invariants, such as elasticity, are useful to understand how far direct-sum decompositions are from being unique. In this talk, I will introduce the monoid of isomorphism classes of finitely generated torsion-free modules, and discuss properties that will shed light on the direct-sum behavior of this class of modules. (Received August 13, 2012)