1151-13-56   **Nicholas R Baeth*** (`nbaeth@fandm.edu`) and **Daniel Smertnig**. *Direct-sum decompositions of modules over Bass rings.* Preliminary report.

A Bass ring is a one-dimensional reduced ring whose integral closure (in its total quotient ring) is finitely generated as a module, and such that every ideal is two-generated. Since the work of Levy and Wiegand in the 1980s it has been known that direct-sum decomposition need not be unique, or even cancellative, over Bass rings. However, as is the case with Dedekind domains, isomorphism classes of modules over Bass rings can be determined via genus and classes. Using the results of Levy-Wiegand, and Levy-Odenthal, we prove a transfer homomorphism from the semigroup of isomorphism classes of finitely generated torsion-free modules over a given Bass ring to an easier-to-understand Diophantine monoid. Using this map we are able to provide some measure of how non-unique direct-sum decompositions can be. (Received August 06, 2019)