1145-13-817 **Roger A Wiegand*** (`rwiegand1@unl.edu`), Department of Mathematics, University of Nebraska, Lincoln, NE 68588-0130. *Semigroups of Modules.*

Let R be a commutative, Noetherian, local ring. We consider the semigroup of isomorphism classes of finitely generated R-modules, with the semigroup operation induced by the direct sum. This approach yields some "nice" properties that hold for all decompositions. For example, one *cannot* have indecomposable modules A and B such that $A \oplus A \oplus A \cong B \oplus B$. It also allows one to construct many "silly" examples. For instance, one can have four pairwise non-isomorphic indecomposable R-modules A, B, C, D such that $A \oplus B \oplus C \cong D^{(217)}$ (the direct sum of 217 copies of C).

In this talk I will describe how one obtains such silly examples and also consider the following question: Given a module M and a positive integer n, how many indecomposable modules occur as direct summands of $M^{(n)}$? This will lead to some open problems that are accessible to advanced undergraduates. (Received September 15, 2018)