1007-16-201 **Mark Kleiner*** (mkleiner@syr.edu), Department of Mathematics, Syracuse University, Syracuse, NY 13244-1150, and **Shashidhar Jagadeeshan**. *Algebras with smallest resolutions of simple modules.* Preliminary report.

Let X be a finitely generated left module over a left artinian ring R, and let $p(X) = \{l_i\}$ be the infinite sequence of nonnegative integers where l_i is the length of the i-th term of the minimal projective resolution of X. We introduce a preorder relation $\leq$ on the set $\{p(X)\}$ and characterize the elementary finite-dimensional algebras A with the following property. Let S be a simple A-module, and let T be a finitely generated module over an arbitrary left artinian ring R. If the projective dimension of S does not exceed the projective dimension of T, then $p(S) \leq p(T)$. We characterize the indicated algebras by quivers with relations. (Received February 21, 2005)