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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)