1053-13-96 **Luchezar L. Avramov*** (avramov@math.unl.edu), Department of Mathematics, University of Nebraska, Lincoln, NE 68588, **Srikanth B. Iyengar** (iyengar@math.unl.edu), Department of Mathematics, University of Nebraska, Lincoln, NE 68588, and **Joseph Lipman** (lipman@purdue.edu), Department of Mathematics, Purdue University, W. Lafayette, IN 47907.

Reflexivity and rigidity for complexes.

A notion of rigidity with respect to an arbitrary semidualizing complex C over a commutative noetherian ring R is introduced and studied. One of the main results characterizes C-rigid complexes. Specialized to the case when C is the relative dualizing complex of a homomorphism of rings of finite Gorenstein dimension, it leads to broad generalizations of theorems of Yekutieli and Zhang concerning rigid dualizing complexes, in the sense of Van den Bergh. Along the way, new results about derived reflexivity with respect to C are established. Noteworthy is the statement that derived C-reflexivity is a local property; it implies that a finite R-module M has finite G-dimension over R if $M_{\mathfrak{m}}$ has finite G-dimension over $R_{\mathfrak{m}}$ for each maximal ideal $\mathfrak{m}$ of R. (Received August 24, 2009)