1059-13-211 **David A. Jorgensen*** (djorgens@uta.edu), Department of Mathematics, University of Texas at Arlington, Arlington, TX 76012. *On the existence of exact pairs of zero-divisors.* Preliminary report.

Let $(R, \mathfrak{m}, k)$ be a local ring. A *totally reflexive R-module* is a finitely generated R-module whose natural biduality map $M \to M^{**}$ is bijective, and which satisfies $\operatorname{Ext}^i_R(M \oplus M^*, R) = 0$ for all $i > 0$. Recent work on constructing infinitely families of pair-wise non-isomorphic indecomposable totally reflexive modules by Holm, and Christensen et al. have as a common foundation the existence of *exact pairs of zero-divisors*, these being pairs $a, b \in R$ such that $(a) = (0 : b)$ and $(b) = (0 : a)$. In this talk we will discuss the fact that the existence of exact pairs of zero-divisors in R is a non-empty open condition for quadratic algebras satisfying $\mathfrak{m}^3 = 0$. This fact also gives a partial converse to a theorem of Christensen and Veliche. (Received February 23, 2010)