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**Jesse Burke\*** (jburke@math.ucla.edu), Los Angeles, CA 90095, and **Mark E Walker** (mwalker5@math.unl.edu), Lincoln, NE, NE 68588. *Matrix factorizations over projective schemes.*

We will discuss matrix factorizations of global sections of line bundles on schemes. These objects are a generalization of the matrix factorizations introduced by Eisenbud in 1980, and have been studied recently by several groups of people. If the line bundle is very ample relative to a Noetherian affine scheme, homomorphisms in the homotopy category of matrix factorizations may be computed as the hypercohomology of a certain mapping complex. This explicit description is used to show that there is a fully faithful embedding of the homotopy category of matrix factorizations into the singularity category of the corresponding zero subscheme. (Received September 24, 2012)