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**Heath Emerson\*** ([hemerson@math.uvic.ca](mailto:hemerson@math.uvic.ca)), Department of Mathematics and Statistics,  
University of Victoria, Victoria, BC V8P 5C2, Canada. *Lefschetz-type invariants for  
correspondences.*

The classical Lefschetz formula computes in geometric terms the Lefschetz number of a smooth, transverse self-map of a compact manifold. Using E-theory or Kasparov theory one can enlarge the category of smooth maps between compact manifolds to include KK-elements, which are in a vague sense higher-dimensional objects than just maps. Formally, one can take the Lefschetz number of such a morphism, and compute it in geometric terms. This is not the best one can do: in the case of a KK-element there is other, higher dimensional information available. We show how a Lefschetz class (in K-homology) can be formally associated to an element of  $\text{KK}(X,X)$ . When a geometric description of KK is available, for instance in terms of correspondences, one can geometrically compute the Lefschetz class and obtain a corresponding higher-dimensional Lefschetz formula. The procedure is fairly general, and works equivariantly with respect to infinite discrete groups acting on non-compact spaces  $X$ , and even for certain groupoids. (Received September 10, 2007)