

AN APPLICATION OF THE PERSISTENCE PARADIGM TO THE COMPUTATION OF THE CONLEY
INDEX

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A new idea for determining the Conley index will be introduced, using an approximate isolating neighborhood and an approximation of a map. The approach is based on the persistence paradigm applied to a sequence of candidates for index pairs, whose relative homology is linked by homomorphisms corresponding to inclusions. A construction will be proposed in which the exit set is defined depending on the percentage of the image that falls outside of the neighborhood. A few sample applications of this method to discrete-time dynamical systems and to flows will be shown. These applications are based on combinatorial sets and outer approximations of maps with respect to a cubical grid in the Euclidean space.