1119-03-137 **Hakim J. Walker*** (hjwalker@gwu.edu), 801 22nd Street NW, Room 724A, Washington, DC 20052. *Complexity of isomorphisms for certain classes of infinite graphs.* Preliminary report.

Two computable structures $\mathcal{A}$ and $\mathcal{B}$ are *computably isomorphic* if there exists a computable bijection from $\mathcal{A}$ to $\mathcal{B}$ that preserves all of the functions and relations in the structure. Furthermore, we say that $\mathcal{A}$ is *computably categorical* if every two computable copies of $\mathcal{A}$ are computably isomorphic. Significant work on computable categoricity has been done for a variety of mathematical structures, including linear orders, abelian groups, Boolean algebras, and many others.

We introduce the notion of a (2,1):1 structure, which consists of a countable set A together with a function $f : A \to A$ such that for every element x in A, f maps either exactly one or exactly two elements of A to x. These structures extend the notions of injection structures, 2:1 structures, and (2,0):1 structures studied by Cenzer, Harizanov, and Remmel in 2014, all of which can be thought of as infinite directed graphs. In this talk, we will investigate various computability-theoretic properties of (2,1):1 structures, provide conditions under which such structures are (and are not) computably categorical, and present some interesting examples. (Received February 13, 2016)