1106-03-1675 **Edward W. Krohne*** (edward.krohne@my.unt.edu), **Su Gao** (sgao@unt.edu), **Steve Jackson** (jackson@unt.edu) and **Brandon Seward** (bseward@umich.edu). *A Characterization of Existence for a Class of Continuous Equivariant Maps to Subshifts of Finite Type.*

Many simple combinatorial questions have corresponding definable analogues, i.e., continuous, measurable, Borel, etc. For example, it is well known that if a topological space is given a Borel graph structure, there may exist graph colorings (e.g., with Choice) that use fewer colors than any definable coloring, i.e., the "definable chromatic number" differs from the classical chromatic number. For the space $F(2^{\mathbb{Z}^2})$ with the shift-action graph (a variation on the Cantor space), we answer a variety of such combinatorial questions, including continuous chromatic number. We answer these questions by providing a necessary and sufficient condition for the existence of a continuous equivariant map to a given subshift of finite type. Specifically, we give a sequence $(X_n)_{n\in\mathbb{N}}$ of subshifts of finite type such that for any subshift of finite type X, there exists a continuous equivariant map $\varphi : F(2^{\mathbb{Z}^2}) \to X$ iff for some n, there is a continuous equivariant map $\varphi_n : X_n \to X$. For a given n, the existence of φ_n is conceptually much simpler than the existence of φ, and can even be determined by a finite search. (Received September 16, 2014)