1096-15-2184 **Stephen Philip Cameron*** (spcameron@email.wm.edu) and **Christino Tamon** (ctamon@gmail.com). *Universal State Transfer.*

A Hermitian graph is a directed, complex weighted graph with a Hermitian adjacency matrix. Given a Hermitian graph G with adjacency matrix A, a continuous-time quantum walk on G is given by the unitary matrix $U(t) = exp(-itA)$. We say that G has "pretty good state transfer" (PGST) from vertex a to vertex b if $|U(t)_{b,a}|^2$ can be made arbitrarily close to unity, and "perfect state transfer" (PST) if equality is achieved. In this work, we examine graphs with "universal" state transfer, where pretty good/perfect state transfer occurs between all pairs of vertices. Recently, Godsil et al. (2012) proved that a certain family of paths has PGST between antipodal vertices. In a similar vein, we prove that there is a family of Hermitian cycles with universal PGST. Moreover, we give sufficient conditions for a permutation matrix to lie in the closure of $\{U(t) : t \in \mathbb{R}\}$, and use this to prove that the automorphism group of any universal PGST graph is abelian, with its order dividing the order of the graph. We then examine circulant graphs, and give necessary and sufficient conditions for universal PST to occur in terms of the spectrum of the graph. Finally, we give an example of a nontrivial, real weighted graph with universal PGST. (Received September 17, 2013)