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*Compactification of Infinite Graphs and Sampling.*

We consider Hilbert spaces of functions on infinite graphs and their compactifications. We arrive at a sampling formula in the spirit of Shannon; the idea is that we allow for sampling of functions  $f$  defined on a continuum completion of an infinite graph  $G$ , sampling the continuum by values of  $f$  at points in the graph  $G$ . Rather than the more traditional frequency analysis of band-limited functions from Shannon, our analysis is instead based on reproducing kernel Hilbert spaces built from a prescribed infinite system of resistors on  $G$ . (Received September 16, 2014)