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Akram Aldroubi (akram.aldroubi@vanderbilt.edu) and **Sui Tang***
(sui.tang@vanderbilt.edu), Dept. of Mathematics, Nashville, TN 37240. *Dynamical Sampling,
and time-space trade-off in Hilbert spaces.*

Dynamical sampling is a newly proposed framework studying the recovery of the initial state f of an evolution process from a combined set of coarse samples from varying time levels. It has been shown that it is possible to recover the initial state using a reduced number of measuring devices activated more frequently for some special evolution systems. In this paper, dynamical sampling of general evolution processes in the separable Hilbert space case is considered. We give a complete characterization specifying when lossless trade off between spatial and temporal samples happens for the finite dimensional case. For the infinite dimensional case, we give a similar characterization for a special class of evolution system. This work is in collaboration with Carlos Cabrelli and Ursula Molter. (Received August 08, 2014)