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**Akram Aldroubi\*** (akram.aldroubi@gmail.com), 1520 Stevenson Center, Dept Mathematics, Vanerbilt University, Nashville, TN 37240, and **Jacqueline Davis** and **Ilya Krishtal**. *Dynamical Sampling: Exact reconstruction From sensing Networks*.

Let  $V \subset L^2$  be a shift invariant subspace and  $f \in V$  be an initial distribution that is evolving in time under the action of a family of (spatially) invariant evolution operators  $\{A_t\}_{t \in [0, \infty)}$ :

$$f_t(x) = (A_t f)(x). \tag{1}$$

Let  $X_m$  be the set  $m\mathbb{Z}$ ,  $m \in \mathbb{N}$ . We study the conditions under which  $f = f_0$  can be recovered from the samples  $\{f(X_m), (A_1 f)(X_m), \dots, (A_T f)(X_m)\} \cup \{f(\Omega)\}$  in a stable way, where  $\Omega \subset \mathbb{Z}$  is a small extra sampling sets judiciously chosen. (Received September 21, 2012)