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## Dynamical Sampling and Systems of Iterative Action of Operators

### Abstract

We consider frames and Bessel systems generated by iterations of the form  $\{A^n g : g \in \mathcal{G}, 0 \leq n, < L(g)\}$ , where  $A$  is a bounded linear operators on a separable complex Hilbert space  $\mathcal{H}$  and  $\mathcal{G}$  is a countable set of vectors in  $\mathcal{H}$ . The system of iterations mentioned above come from the so called *dynamical sampling problem*. In dynamical sampling, an unknown function  $f$  and its future states  $A^n f$  are coarsely sampled at each time level  $n$ ,  $0 \leq n < L$ , where  $A$  is an evolution operator that drives the system. The goal is to recover  $f$  from these space-time samples. The dynamical sampling problem has connections and applications to other areas of mathematics including, Banach algebras,  $C^*$ -algebras, spectral theory of normal operators, and frame theory.

Talk time: 2016-07-19 3:00PM— 2016-07-19 3:20PM

Talk location: Crow 204

Special Session: Applied harmonic analysis, frame theory, and operator theory. Organized by G. Kutyniok.