Damir Bakić: **Reconstruction of signals with erasures**


We discuss the problem of recovering signal from the frame coefficients with erasures. In the first part we shall give an overview of the problem and the results from the recent literature, starting from Goyal, Kovačević, Kelner (ACHA 2001), including Han, Sun (IEEE Transactions on information theory, 2014) and Larson, Scholze (JFAA, 2015).

In the second part we shall present our results in an infinite-dimensional Hilbert space setting. Given a frame $(x_n)_{n=1}^{\infty}$ for a separable Hilbert space $H$ and a finite set of indices $n_1, \ldots, n_k$ that satisfies MR condition (minimal redundancy, which means that $\{x_n : n \neq n_1, \ldots, n_k\}$ generates a dense subspace of $H$) we prove that there exists a dual frame $(v_n)_{n=1}^{\infty}$ such that $v_{n_i} = 0$ for $i = 1, \ldots, k$, and $x = \sum_{n=1}^{\infty} \langle x, x_n \rangle v_n$ for all $x$ in $H$. Additionally, we provide a description of a dual frame with these properties that can be used in applications.