

1106-43-595

Karin Schnass* (kschnass@uniss.it), Porto Conte Ricerche, 07041 Alghero, Italy. *A tour from sparse approximation over dictionary learning to random sparse properties of frames.* Preliminary report.

Overcomplete frames are a popular choice when trying to sparsely - compactly represent a class of signals. In this talk we will start with a short introduction into dictionary learning where one tries to find the frame which allows for the sparsest representation of a given signal class. Motivated by the theoretical analysis of K-SVD, a widely applied dictionary learning algorithm, we will then present an interesting problem concerning the expected image of the projection onto a subspace spanned by randomly chosen S frame/dictionary elements. We show the experimental behaviour of the operator in question for several underlying frames and then present some very preliminary theoretical results for special choices of the sparsity level S and the underlying frame. (Received September 03, 2014)