1154-15-2604 **Pawan K Gupta*** (gupta.pawan@knights.ucf.edu) and **Marianna Pensky**. *Solution of Linear Ill-Posed Problems Using Random Dictionaries.*

In the present paper, we consider an application of overcomplete dictionaries to the solution of general ill-posed linear inverse problems. In the context of regression problems, there has been an enormous amount of effort to recover an unknown function using such dictionaries. One of the most popular methods, lasso, and its versions, is based on minimizing the empirical likelihood and unfortunately, requires stringent assumptions on the dictionary, the so-called, compatibility conditions. Though compatibility conditions are hard to satisfy, it is well known that this can be accomplished by using random dictionaries. In the present paper, we show how one can apply random dictionaries to the solution of ill-posed linear inverse problems. We put a theoretical foundation under the suggested methodology and study its performance via simulations and real-data example. (Received September 17, 2019)