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While much attention has been given for the solution of inverse problems, very little attention has been given to the topic of design in inverse problems. Design naturally arises when different experiments are considered or when one has an option to choose different regularization operators.

In this talk we present a systematic framework for design in inverse problems. We show that it leads to stochastic optimization problems. We further suggest effective algorithms for the solution of the problem. (Received September 23, 2009)