On LASSO-type Regularizations and Sparsity of their Minimizers

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This talk showcases that the sparsity of the LASSO minimizer is comparable to the sparsity of the original vector being measured when the measurement matrix satisfies the restricted isometry property. This result holds even in the noisy setting provided that the regularization parameter is not too small. Accompanying two-sided bounds on the recovery error will also be given. The result will then be extended to variations of the standard LASSO, including squared LASSO. We will highlight connections of the latter with nonnegative least-squares and with orthogonal matching pursuit.