## L<sub>2</sub>-Boosting, Cross-Validation and Model Selection for High-Dimensional Regressions

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## Abstract

Cross-validation (CV) is one of the most popular ideas for choosing models in conventional (low-dimensional) model selection problems, in which the number of observations, n, is much larger than the number of variables, p. However, CV faces immense difficulties in high-dimensional (n<<p) situations, because the search for the lowest CV value among all possible variable combinations is computationally infeasible. By using L<sub>2</sub> -boosting as a bridge, we show how the idea of cross-validation can be realized in high-dimensional scenarios. Theoretical justification as well as simulation evidence are provided.

This talk is based on joint work with R.-B. Chen.