**High-dimensional regression and classification with sparse partial robust M estimation**

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Sparse partial robust M regression is introduced as a robust counterpart to sparse partial least squares regression. The resulting regression coefficients are sparse, and the method is robust with respect to both vertical outliers and leverage points. An adaptation of the method leads to an algorithm that can be used in the two-group classification context. Sparsity is maintained, and the resulting classifier is robust against data outliers and mislabelled observations. Both procedures perform very well on high-dimensional data sets, which will be demonstrated with simulation studies and real data sets.

**Keywords**: Partial least squares; robust M regression; sparse estimation; outliers.