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**A Lanczos method for parameter dimension reduction
with inverse regression**

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The Lanczos method may be used to produce Gaussian quadrature points and weights for a given weight function. We exploit this fact to accurately compute inverse regressions used in the statistical technique known as sufficient dimension reduction (SDR). These dimension reduction techniques are valuable in uncovering structure in models that depend on several input parameters. However, traditional methods of computing SDR subspaces depend heavily on the simple sampling techniques used. The Lanczos-based approach reduces this dependency and provides more reliable dimension reduction.