

# Balanced realizations

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Various kinds of balanced realizations have been shown to be useful to solve certain problems in operator theory and control theory. We will give an overview of some of these applications with emphasis on the use of balanced realizations for model reduction in control theory. The decay rate of the singular values of a Hankel operator plays an important role in these model reduction applications of balanced realizations and we will therefore also consider this issue in a control of partial differential equations context.