

# 1 Introduction

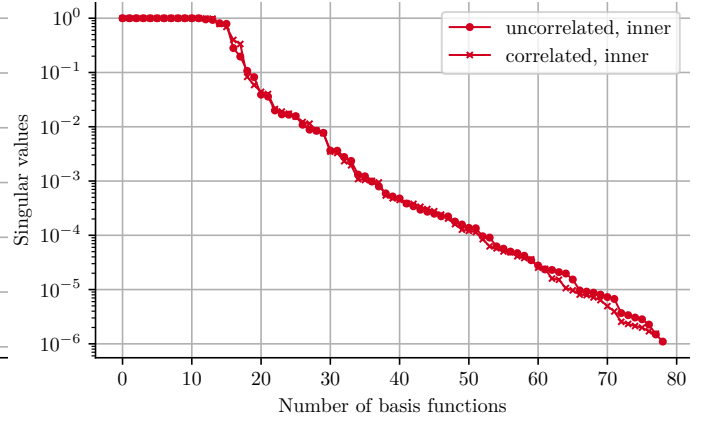
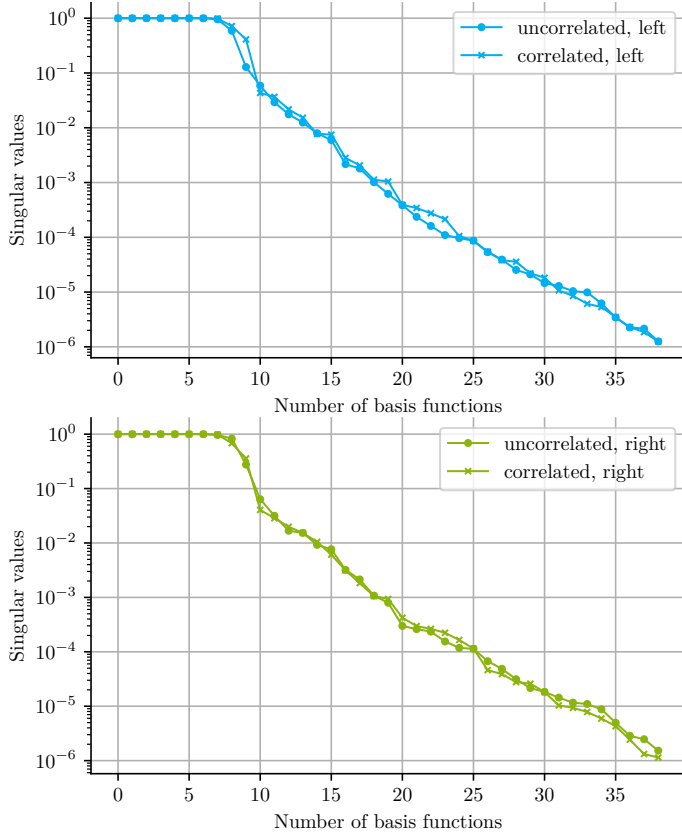
# 2 Methods

# 3 Results

## 3.1 Basis Construction

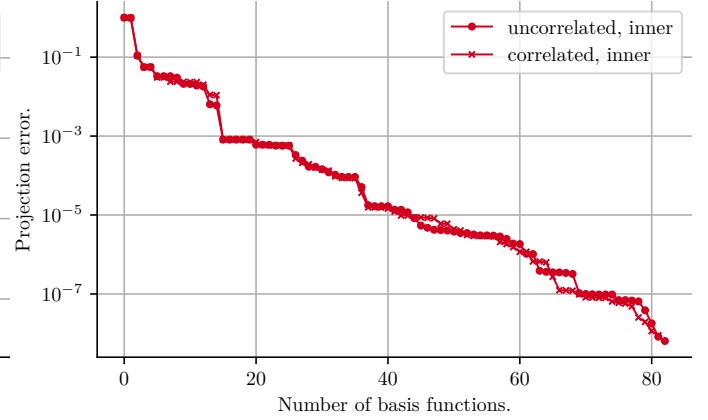
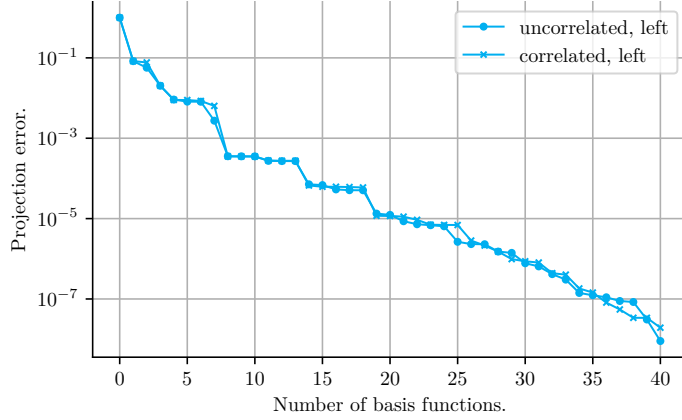
For the beam problem, there are three oversampling problems to consider (left, inner, right). For each of the associated parametric transfer operators,  $n_{train}$  parameter samples are chosen, and the range for each of these (fixed) transfer operators is approximated via random sampling. In the sampling *normal* or *multivariate normal* distribution is used. The range approximation of the  $n_{train}$  transfer operators yields  $n_{train}$  sets of basis functions, which are further compressed via POD, to obtain the final parameter independent basis functions (POD modes).

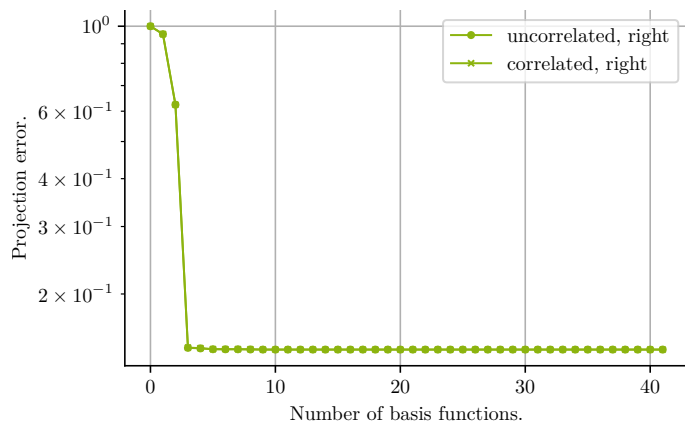
### 3.1.1 Singular values of POD modes



### 3.2 Projection Error

The projection error is computed for a test set for each configuration that was computed using the FOM. Each test set has size  $n_{test}$ .





## 4 Conclusions