

# 1. Screening Analysis

**Initial  
Set of  
Parameters**

Morris  
Factorial Sampling

$$\text{Runs} = N_R \times (D + 1)$$
$$N_R \sim 10^1 - 10^2$$

Sobol'-Saltelli  
Sampling

$$\text{Runs} = N \times (D + 2)$$
$$N \sim 10^2 - 10^3$$



Features  
Extraction

- Max. clad temperature
- Time of quenching
- Time-averaged clad temperature
- etc.

Noninfluential  
Parameters

Importance Ranking

- Elementary effect
- Total-effect

Influential  
Parameters

# 2. Variance Decomposition

Monte Carlo  
Estimation

KL  
Transform

Functional Data Analysis

Registration



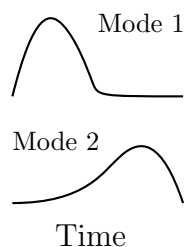
Sobol'-Saltelli  
Sampling

$$\text{Runs} = N \times (D + 2)$$
$$N \sim 10^3 - 10^4$$

**Set of  
Sensitivity  
Indices**

- Main-effect
- Total-effect

Functional  
variations



Distribution of  
Scores

