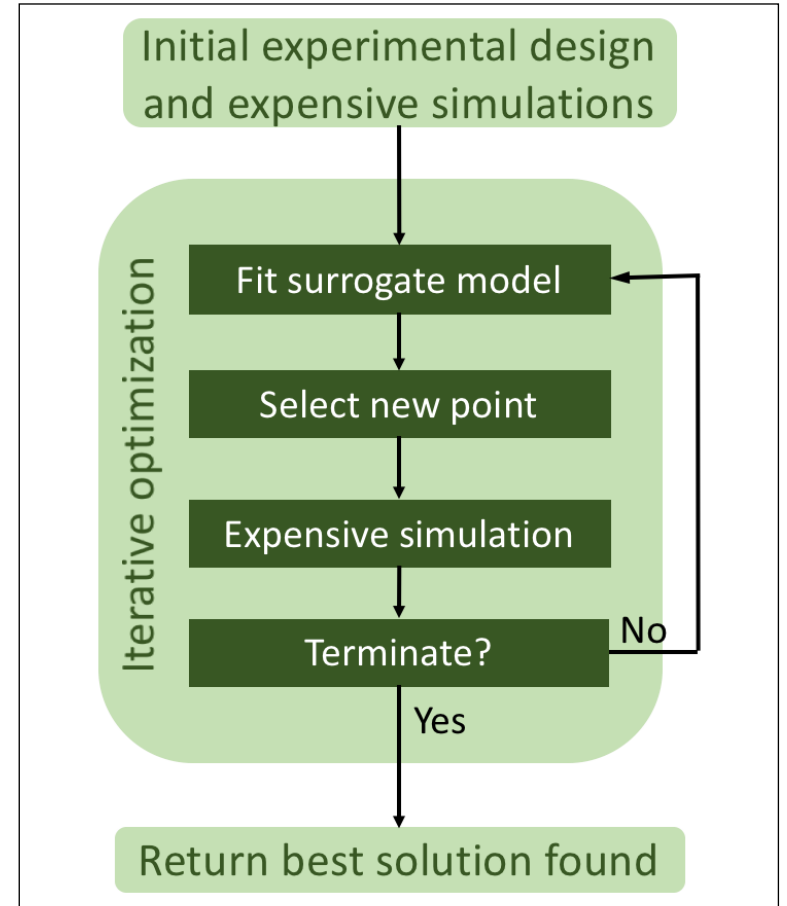# MATSuMoTo

**MATLAB Surrogate Model Toolbox**

**Efficient optimization of computationally-expensive black-box problems.** For integer, mixed-integer, and continuous variables. Your choice of surrogate model, sampling method, and initial design strategy. Easy to use. Freely available.

- ▪ **Capabilities**
  - — Efficient solution of parameter optimization problems that involve time-consuming black-box HPC simulations during the objective function evaluation
  - — Surrogate models approximate the expensive function and aid in iterative selection of sample points
  - — Adaptive sampling for continuous, integer, and mixed-integer problems *without* relaxation of integer constraints

- ▪ **Available User options**
  - — **Surrogate model choices:** radial basis functions, polynomial regression, multivariate adaptive regression splines, surrogate model ensembles
  - — **Iterative sample point selection:** local perturbations, global candidate points, minimization over the surrogate model
  - — **Initial experimental design:** Latin hypercube, symmetric Latin hypercube, design space corners



**https://optimization.lbl.gov/downloads**