

Hybrid Multi-Fidelity Optimization Strategy

Full Parameter
Space (N dims)

Reduced Space
($K \ll N$)

Optimal
Parameters

**Stage 0:
Green's Function
Screening**



**Stage 1:
Multi-Fidelity
BO Scout**



**Stage 2:
BNN
Refinement**

*Dimensionality
Reduction*

*High-Fidelity
Validation*