

## Physics &gt; Optics

# Reduced basis method for computational lithography

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A bottleneck for computational lithography and optical metrology are long computational times for near field simulations. For design, optimization, and inverse scatterometry usually the same basic layout has to be simulated multiple times for different values of geometrical parameters. The reduced basis method allows to split up the solution process of a parameterized model into an expensive offline and a cheap online part. After constructing the reduced basis offline, the reduced model can be solved online very fast in the order of seconds or below. Error estimators assure the reliability of the reduced basis solution and are used for self adaptive construction of the reduced system. We explain the idea of reduced basis and use the finite element solver JCMSuite constructing the reduced basis system. We present a 3D optimization application from optical proximity correction (OPC).

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