

A Look at Applications
of the
Complex Polynomial Method
Using a Least Squares Fit
To
Boundary Conditions

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ABSTRACT:

We present a new application of the Complex Polynomial Method variant of the Complex Variable Boundary Element Method. Instead of fitting the solution using collocation points, we minimize the error in the L_2 norm to find a least squares approximation using the Best Approximation Method in computational mechanics. This advancement greatly enhances the utility and efficiency of the method, allowing us to apply the method to a variety of engineering problems.

KEYWORDS: Complex Polynomial Method, Complex Variables, Partial Differential Equations, Boundary Value Problems, Complex Variable Boundary Element Method, Laplace Equation

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