**A Comparison of Solving the Poisson Equation Using Different Numerical Methods in MATLAB**

**MECE 5397- Scientific Computing**

**Project A – Poisson Equation AP02-1**

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**Abstract**

**Mathematical Statement of Problem**

In this report, we will test various numerical methods to solve the Poisson Equation. The Poisson equation is an elliptic Partial Differential Equation (PDE) that is linear and has constant coefficients. The Poisson equation is used to model phenomena such as the potential field caused by a given charge or mass density distribution.

We will test the numerical methods on the Poisson equation with 3 nonhomogeneous, Dirichlet boundary conditions and 1 homogenous, Neumann boundary condition.