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2 Theory

Identical infinitely-long metal plates $A_1, A_2, A_3, B_1, B_2, B_3$ and B_4 are placed in an *interleaved* arrangement as dipicted in fig1. Group of plates A_i and B_i are connected to the terminal A and B , respectively, by means of gold wires. which are maintained at constant electric potentials U_A and U_B respectively.
Our goal will be to approximate the potential distribution inside the capacitor at steady state with,

$$U_A = 5V$$
$$U_B = -5V$$
$$d = 0.5\mu m$$
$$\textit{Dimensions: } 4 \times 4.4\mu m$$

Mathematical Formulation:

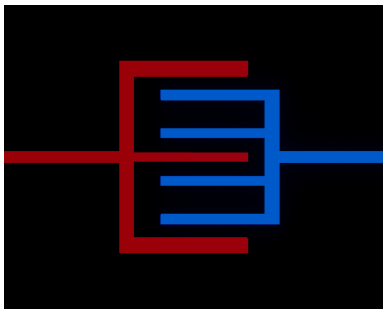

Figure 1: Diagram dipciting the arrangement of plates in a interleaved fashion.

We introduce new variables

$$\frac{\partial^2 U'}{\partial x'^2} + \frac{\partial^2 U'}{\partial y'^2} = f(x', y') \tag{2.1}$$

3 Methodology

4 Analysis of Numerical Results

5 Appendix

5.1 Non-Dimensionalization

5.2 Programs

5.3 Contributions