

Nano FIB 2005: “Advances in Focused Ion Beam Microscopy”



Formation of Nano-Electrodes on Gold-plated Glass

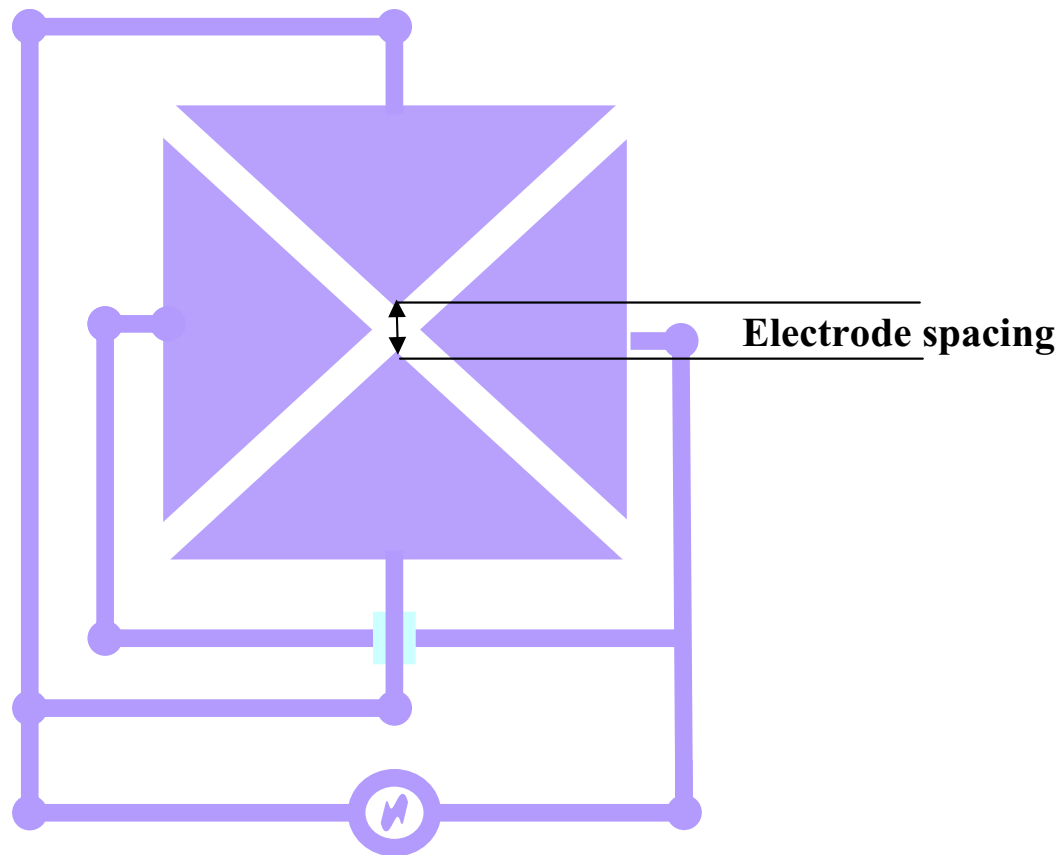
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Purpose

- Gold nano-electrodes have been used to characterize electrical parameters of DNA molecules towards developing molecular devices [1, 2].
- The persistence length of DNA $\sim 55\text{nm}$ [3]
- Focused ion beam (FIB) tools are useful in machining electrodes with such spacing.
- The FIB provides the versatility and ease of etching patterns at nano scale.

Outline

- Create 4 electrically isolated electrodes with 25nm spacing using a FIB tool



Statement of Work

- Etch gold (Au): sample with 200nm of Au plated onto Cr on glass
- Generate 512X512 tiff image of desired pattern to automate and speed up the process.
- Etch a 4 nano-electrode pattern with 25nm spacing
- Create bond pads
- Demonstrate electrical isolation of electrodes via passive voltage contrast